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THE CENTENNIAL FORUM



PROCEEDINGS



A Symposium
to Celebrate the
100th Session of
the International
Wheat Council

June 28 and 29, 1984, Ottawa, Ontario Canada



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PROCEEDINGS
OF THE
CENTENNIAL FORUM

JUNE 28-29, 1984



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FOREWORD

This report contains material presented at the Centennial Forum, a symposium held in Ottawa, June 28-29, 1984 to celebrate the 100th Session of the International Wheat Council and the 50th anniversary of the International Wheat Agreement. The 100th Session was hosted by the Government of Canada, which also sponsored the symposium.

The proceedings are available in french.
Le compte rendu est disponible en français.

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The Centennial Forum

The first International Wheat Agreement was signed some 50 years ago and in June, 1984 the International Wheat Council held its 100th Session in Ottawa. In recognition of the Council's important role in assisting the marketing of wheat and in encouraging international co-operation in grain matters, the Canadian Government hosted the 100th Session and conducted a Special Symposium to mark the occasion. Speakers from all regions of the world examined the future for grain in the Centennial Forum in Canada's capital June 28/29, 1984. Delegates from the member countries of the International Wheat Agreement, representatives from many non-member countries and invited guests from major producer groups, trade and international organizations attended.

The Grains Challenge

Wheat and other food grains are as essential to the well being and security of the world today as they have been throughout history. All countries, regardless of their size, location, stage of development, economic or political system, have a vital interest in these essential commodities. The production, trade and aid flow of food grains is influenced by major events in all parts of the world and, in turn, often affect the evolution of these events. In each country, Government policies strongly influence the grain sector and today in an increasingly complex and rapidly changing world, Government policies continue to be critical to the future for grain.

During the past 50 years, Governments have sought, through discussion and negotiation, to improve the environment for grain production and trade. The issues in 1984 are no less numerous, sharp or challenging than at any time in the past. Simultaneously, the world is experiencing grain surplus and shortage, bumper harvests and drought, low prices and lack of buying power, modern scientific farming and primitive agriculture. Governments must examine the future carefully to plan their policies as they influence grain production, distribution, trade, consumption and food security. The challenge is to anticipate the future and to develop policies to safeguard and encourage the vital food grains sector.

The Program

The first session on June 28 examined The Global Environment of the Future, which provided a broad overview of developments likely to effect outlook for grains. Panel speakers who were drawn from many regions and interests, provided a focus on the future with respect to resources, new technologies, food needs, the trading environment and international financing.

The second session, on June 28, examined "World Grain Trade Beyond 2000", to provide a framework for discussing the future for grain from the perspective of producers, importers, exporters, processors, handlers and shippers.

The third and final session, on June 29, considered "Future Directions for Policy", as a framework within which Council members and invited participants considered national plans and programs in the global context. Panel speakers commented on policies as they related to production of grains, consumption, food aid and food security and international co-operation in grains.

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THE CENTENNIAL FORUM

A symposium sponsored by the Canadian Government
to celebrate the 100th session of the
International Wheat Council

Morning Session - June 28, 1984

MR. W. M. MINER (Conference Chairman) To begin the Centennial Forum, this morning's program has an opening ceremony involving two of the ministers who are responsible for Agriculture and for grain policy within Canada. It is certainly a pleasure for us to have them join us and I would like to call initially on the Minister of Agriculture, the Honourable Eugene Whelan. Mr. Whelan is a farmer from Ontario, has been a member of the House of Commons since 1962 and was appointed Minister of Agriculture in 1972. This has given him a long portfolio in which he has been active in the field of agriculture and on an international basis. He is also active in the area of world food security and is currently the President of the World Food Council. Mr. Whelan.

THE HONOURABLE EUGENE WHELAN (Minister of Agriculture) Thank you, Mr. Miner. Ladies and gentlemen, it is indeed a pleasure for me to be here. I was listening to Mr. Miner say how long I had served and I want you to all know that I am 14 years younger than President Reagan. He is running for the top job, to be President of one of the most powerful nations in the world and he is 14 years older than I am. I just want to set that record straight today, though it seems that I have been around for so long.

I welcome you to this Centennial Forum. To everyone who is visiting Canada, a special welcome to our nation's capital. I am sure those of you who are visiting it for the first time have recognized it for its beauty, for its freedom, for your ease to move about the capital of this great democratic country, Canada.

The Government of Canada is pleased and proud that it is able to contribute to these deliberations and programs by hosting this 100th Session. We have supported co-operation in international wheat matters since the early 1920s. This is an historic occasion, marking more than 50 years of co-operation among grain producing nations, co-operation in the search for an international solution to our problems of marketing and distributing wheat. Farmers have no problem producing it. In most of the areas they have some problems but every year, we generally come through with a pretty good crop.

As a farmer, President of the World Food Council and Minister of Agriculture of the second largest wheat exporting country in the world, I understand and am concerned about those problems. And I know for

most of us, a major problem is not increasing production. We know that if we use all the modern technology that is available to us, we can increase wheat production by 30% in Western Canada in two years. We are not using all the knowledge and all the technology available to us. If we want to provide an incentive, like the heavy subsidization in the European Economic Community, we can probably increase it by 40% in one year. But you see, our farmers are the least subsidized in the world. They produce on an incentive to be creative and hope that the markets are going to be favourable to them. We have the ability to breed high yielding, high yield varieties, and the technology to grow and harvest larger crops. We could produce a lot more grain if we put our minds to it. But how important is volume if we are not able to market our grain, if there is not a big enough financial incentive for our farmers to continue growing grain, and if the people who need it cannot afford to buy it?

As grain producing nations, we face a tragic irony, the irony that many of us are dealing with surplus production while others are facing food shortages. There are at least 450 million malnourished and starving people in the world right now, and yet there is more than enough grain in storage to feed all of them. The problem is not growing more grain but distributing it and showing others the way to food security. It is not enough to sit back and send food aid. We must see that it reaches those who need it most. We must continue to make sure that it is used as an incentive for production and development in food deficit countries.

As President of the World Food Council, I am heartened that the goals of the IWC complement the goals of the World Food Council. I refer in particular to our commitments as donor countries under the Food Aid Convention in 1980. The IWC urges its members to develop their own reserve stocks of grain. It also encourages developed nations to provide financial and technical aid to developing countries. Until those countries are able to grow their own food or have the resources with which to buy food, they will be unable to feed their people. The Food Aid Committee has been examining many of these problems here this week. I hope your discussions have brought us closer to the solutions that we are seeking. I am sure that this forum today and tomorrow will help us focus more clearly on the challenges we face.

Canada has been a member of the International Wheat Council since its beginning, more than 50 years ago. We still firmly believe that through its sessions, solutions may be found. I am pleased that Canada has been able to provide this special forum. In particular, I want to say how happy I am with the high calibre of our guest speakers; Marcel Massé, Alexander King, Gale Johnson, Mitchell Sharp, Emery Castle, just to name a few. But I am concerned in our world, when I see what we are spending on food aid and what we are spending on armaments. This year, it is estimated we will spend, in all countries

in the world, one trillion dollars on armaments, in the mad race for a sophisticated weaponry to destroy one another. We will spend \$12 billion on world food aid programs. What a comparison!

You know that on a farm, they show a loss producing wheat, but a war ammunition factory making sophisticated equipment will never show a loss, because they charge it to the government. In our country, the agriculture budget is about 1.5% of the total expenditures of the federal government. Defence is 15% , even in our country. So you can see the difference in expenditures, even in a country that is known for its agriculture and what its potential is. Just imagine if we spent 2.6% in agriculture in Canada, we could do those things that I am talking about.

We are wearing our land out in many instances in Canada. Some of our land has lost 40% of its productivity; in some instances, even higher than that. Unless there is some system that allows this land to rest and rebuild and stop the salinization of our soils, by the year 2000 - if we are projecting some of our programs - we will not be in that position to worry about transportation and all those other things that are necessary to move grain to world markets in order to take care of our 6 billion people. The population of our planet will go from 4.2 in 1980 to 6 billion people in the year 2000, nearly a 50% increase in 20 years. Conservation of our soils, our land is so important. I made the comparison on how much we are spending even in our own country and yet we are accused of not fulfilling our commitments to our allies. What we are spending on agriculture should be possibly doubled to make sure that we protect that soil, that land, the water, not only for ourselves but for our children and their children's children for the centuries to come. This is so important.

Should we continue this mad race when it is uneconomic to produce wheat or any other agriculture commodity? Should we wear our land out and see it eroded by wind and water, see it destroyed by over-farming, all of these things that we know are so bad? Basic economics is what it amounts to in many instances. A lot of our farmers are doing their very best, as far as using all that modern technology that is available to them, but it is said over one-third of them are not doing that.

In Canada, land is a provincial resource or a state resource. It is not a federal or the national government's resource. The provinces are the ones who manage it. I must say that in some instances, they are doing a damn poor job because they are robbing it and destroying it, not only in Western Canada but in this province where this meeting is being held. The erosion that is taking place here and filling the Great Lakes system with our rich soil, has to stop. It has to stop or there will be nothing, in some instances, for people to produce on.

Many people think of us as a great food producing nation. We are, because 55% of our production is produced further north than in any

other nation in the world - and that includes the Soviet Union, People's Republic of China, and all the other countries that come here to see how we produce food in this land of ice and snow with a short growing season. A big part of that food production is possible because of research and also because of the system that we have which provides an incentive for people to be productive. Those are some of the things that concern not only our country, but other parts of the world too.

I have visited some of your countries, I have seen the horrible clearing of land right up to the river banks and the erosion taking place. It is happening in many other countries of the world where improper management of our resource - the most important resource of all, the renewable resource of land and forestry - is destroying this important production entity.

So without any further words from me today, as we turn our attention to the future, I hope we will discover new directions and explore new ideas that will enhance the co-operation among grain importers and exporters in the years ahead. I want to thank you all and we will see you at one of the most amazing farms in the world, in the center of the city, Agriculture Canada's Research and Experimental Station, where you are going to go this evening to one of the best old barbecues you ever had. Thank you very much.

CHAIRMAN: Thank you, Mr. Whelan, for identifying both issues and opportunities. As you said, we have many distinguished speakers here who we hope will help us with that job.

The next minister of the Government to welcome you this morning is one whom you have already met in this context - Senator Hazen Argue, the Minister responsible for the Canadian Wheat Board. Last night John Parotte indicated that the Minister had arranged everything properly except the weather. I imagine that he and others have noted that overnight someone has managed to do even that. The Senator has been a member of Parliament for 35 years and he is also a wheat farmer from Saskatchewan. He has been active in work related to the interests of this group. It is a pleasure to call on him now to welcome you.

THE HONOURABLE HAZEN ARGUE (Minister of State for the Canadian Wheat Board): Mr. Miner, my colleague, the Honourable Eugene Whelan, guest speakers, ladies and gentlemen. Eugene Whelan and I have worked very closely together for many years in Parliament and recently in the Cabinet, in the interest of the agriculture producers of Canada. Mr. Whelan's responsibility is the Department of Agriculture, which is large, very important, and covers all of Canada. My responsibility has been the grain sector and particularly the Canadian Wheat Board and its operations, with the additional responsibility of being regional

minister for the province of Saskatchewan, which is the main grain growing province in Canada. I think that we have worked together with our colleagues in endeavouring to bring comprehensive agricultural programs forward for Canada, programs that assist the family farm and help assure wherever possible, a reasonable if a modest, income. Mr. Whelan, of course, comes from the province of Ontario which he talks about as being the leading agricultural province in dollar value and I come from the province, which is the leading agricultural province from the standpoint of exports.

Mr. Whelan from Eastern Canada, and I from Western Canada, have endeavoured to support one another, as I think we have generally done, to see that agricultural policies in Canada are fair and helpful to our farmers from coast to coast. I have to be excused early this morning to go back to the second chamber where the Western Grain Stabilization Act is before the Senate. This is a Stabilization Act which provides payouts, some payouts in difficult times when there is a price cost squeeze. The difference between this program and some other programs is that with this program, the farmer himself makes a major contribution. The fund has been building up and at this time, farmers in Canada feel the price/cost squeeze. They are anxious that payments be made from the fund, and that is what we are endeavouring to do.

I have already had the pleasure already of saying a few words earlier to delegates and observers of the 100th session of the International Wheat Council and the Food Aid Committee. I would, however, like to repeat my welcome to those of you from Canada and abroad who have joined the delegates and observers to this session. The 100th session of the International Wheat Council, which has just ended, marks more than 50 years of serious efforts by many countries to improve the conditions of the international wheat market and, as a consequence, the well-being of millions of grain farmers, consumers and organizations engaged in this trade. The Government of Canada has been honoured to host the 100th session of the IWC and to organize this Centennial Forum to look at the future for world trade in grain. I need not tell you that we still face many challenges with respect to grain production and trade. Yet we have all made great progress. This event serves to congratulate the Council and its able Secretariat for all the good work it has done through so many years.

In addition to hosting this forum to mark the important contribution of the International Wheat Council to the grain industry, particularly in encouraging international co-operation in grain and food aid matters, we had a second objective. We hope to create a stimulus leading to the development of positive and effective policies to meet the challenge of the future with respect to grain production, supply and trade.

As an exporting nation, Canada has always been aware of the vital role of international trade. Trade in grains for us is particularly

important. Out of our production of 50 million tonnes, approximately 60% or 30 million tonnes was exported last year, earning in excess of \$6 billion, a major source of revenue for Canada. Trade, however, is more than a number of commercial transactions between purchasers and suppliers. It is at times the only constant line of communication amongst nations when, for various reasons, other forms of contact may have failed or have not yet begun. Often this translates into better relations between countries leading to benefits far beyond economic gain.

Trade in wheat has long been a leader in this regard. Indeed, the International Wheat Agreement was a leader among commodity arrangements. There can be little doubt that the flow of goods and services between nations is going to become even more important in the future as all countries strive to provide their citizens with better living conditions.

Trade has served us well in the past, but as advocated in the objectives of the International Wheat Agreement itself, we must continue to increase our efforts to promote the expansion and free flow of international trade in the interests of both the exporting and importing members.

Since the International Wheat Council was first conceived, the volume of wheat traded internationally has increased by more than 500%. Comparable increases have also occurred in the flows of other grains. It is obvious that trade in grain is no exception to this rule. As I indicated when I spoke to delegates and observers at the opening of the 100th International Wheat Council session on Monday, today we all face strong challenges in the global grain industry.

Producing farmers in the major exporting countries are experiencing declining incomes due to a supply and demand imbalance and resultant low prices, despite a continuing and growing real need for food grains throughout the world. Accordingly, there are strong pressures on exporting countries to adjust their production, marketing and income support policies, to attempt to strengthen prices, and to improve the farmers' financial return to a remunerative level.

Importing countries, while they may be enjoying short-term benefits because of prices, particularly for wheat, face greater future uncertainty with respect to supplies as a result of such market extremes. Developing countries, meanwhile, are finding it difficult to produce sufficient grain to satisfy their needs and to finance the necessary imports. Against this background, our challenge is obvious. Our challenge is to devise new and better policy responses, whether they be national or international, to cope with these enormous economic and social problems.

We have developed, over the years in Canada, what we call an orderly marketing system for grain. We think that the association of farmers, of producer organizations, of the co-operative grain trade, of the private grain trade, and of the Canadian Wheat Board marketing mechanism, is the kind of mix that is reasonable, that brings together all of the elements of the grain production and marketing system in Canada. And I guess as a farmer, as a politician, as the Minister responsible for the Canadian Wheat Board, I look on the international scene and ask myself the question: "Can some of the principles of our marketing system in Canada be extended and applied by others in the international grain marketing arena?"

I think that some of the action that is required to bring about greater measure of co-operation by all the component parts in international trade needs to come, in the exporting countries at any rate, from the producers themselves and I am very pleased that some of our farm organizations in Canada have maintained and have increased their contacts with farm organizations in the United States, so that whatever national and international policies may be worked out from time to time, the interests of those grain producers can be kept in mind. And I am very much aware, as is Mr. Whelan, of the need for all of us to keep very much in mind the requirements of consumers and to endeavour to bring about a grain marketing system that is fair to the producers in the world and fair to the consumers.

In this context, we have arranged, we think, for a very stimulating and interesting program. I would strongly urge you to participate fully in the discussions that will take place. I urge all of you to use this opportunity to thoughtfully consider the future in a search for policy improvements for grain based on the spirit of co-operation which provided the foundation for the important work of the International Wheat Council. I again welcome all of you to Ottawa and Canada and extend my sincere best wishes for a successful Centennial Forum. Thank you very much.

CHAIRMAN: Thank you, Senator Argue. As your Conference Chairman, I would also like to add my words of welcome, and to say that at this point, we can move our program into the Centennial Forum. We are very pleased indeed that this morning Mr. Marcel Massé has agreed to join us as moderator of the first session, which is of course the one which looks broadly forward.

Mr. Massé has had a distinguished career in government service in Canada and has in that respect reached the highest levels of the civil service as the Clerk of the Privy Council. He is also past president of the Canadian International Development Agency and in his current responsibilities, is concerned with external relations, and in addition to that, trade and food and aid development matters. So it is a pleasure for me to invite Mr. Massé to take over the program at this point.

SESSION I THEME: THE GLOBAL ENVIRONMENT OF THE FUTURE

MR. MARCEL MASSÉ (Canadian Under-Secretary of State for External Affairs) (Moderator): The theme of this morning's session is "The Global Environment of the Future". The session is designed to examine future trends from the broadest perspectives and to determine the implications of these trends on the grain sector. Both Doctors King and Martel will be speaking on the broad forces which will shape the environment of the future.

In addition, the discussants, Dr. James, Dr. Donaldson and Mr. Laserson will be addressing specifically future trends in three aspects concerned with science and technology, international financing, and markets and merchandising.

Each of the discussants will make a presentation of perhaps 18 to 20 minutes, followed by a brief question period of two or three questions. Because their themes are so different, we thought that the questions should be addressed to the specific themes rather than the overall subject.

Our first theme speaker this morning is Dr. Alexander King. Dr. King is currently the President of the Club of Rome and Chairman of the International Federation of Institutes for Advanced Study in Stockholm. He was educated at the Imperial College of Science and Technology, at the University of Munich and the University of London. Until 1940, he was senior lecturer of physical chemistry at Imperial College, and at the beginning of World War II, became deputy science advisor to the British Minister of Production.

After the war, Dr. King served as co-director of the European Productivity Agency under the Marshall plan, and later the director of the Office of Scientific and Technical Manpower of the OEEC. On the creation of the OECD in Paris in 1964, he became director general for scientific affairs and education. It was at this time that he founded the Club of Rome together with his friend, Dr. Aurelio Peccei of Italy. Dr. King was appointed President of the Club of Rome following Dr. Peccei's death in April of this year. On retirement from the OECD in 1974, Dr. King became Chairman of the International Federation of Institutes for Advanced Study, a body created to promote and carry out multidisciplinary research on global problems. Dr. King will be discussing the changes we can expect in the global environment between now and the end of the century. He will also be addressing the many different problems of transition and adjustment we face in this period, and he will also try to answer for us or begin looking at an answer, to the question of how we, as a society, can meet this challenge. Dr. King.

DR. ALEXANDER KING (President of the Club of Rome) (Chairman, International Federation of Institutes for Advanced Study):

Mr. Chairman, ladies and gentlemen, thank you very much indeed. The task that I have been given I think is a very large task, and I have only half an hour to fulfil it. I have written a paper, which I think will be distributed later, entitled "The Great Transition", because I do think we are at the beginning of a period of very rapid change towards a global society.

Now all this business of looking into the future is extremely difficult business. I would say in fact that it is pretty well a fool's game. I am thinking that, on the analogy of the court jesters and fools of mediaeval times who had the job of sometimes saying unpleasant things to the rulers and decision-makers to make them jump a little, in order that they behave in a slightly better way.

I think that the future of today has something of the same function. I myself, am rather interested in the self-defeating kind of looking into the future. The arch prototype from historical times of this, of course, was Cassandra in ancient times. She advised the decision-makers of the time that the city would be captured and sacked. However, she was a very bad policy adviser. Her relations with the decision-makers were quite unsatisfactory on personality grounds, and she was not listened to. She was proved to be right, the Trojan horse came in, the city was taken and sacked. Had she been listened to, had action been taken, the Trojan horse would have been destroyed and the city would not have been sacked, and she would have been proved wrong, usefully wrong. I think it is this self-defeating looking at future trends which can help people in political positions to adjust their policies a little so these future trends change in their direction, to some extent. That is my general point of view, or philosophy, on this whole business.

Now as I say, we are in a transition which is likely to go on for at least 40 or 50 years. It is compounded of many elements. We are, of course, living under the Damocles sword of nuclear war, and this, I am afraid, is likely to go on for some time, and perhaps, because of the proliferation of nuclear weapons gradually taking place throughout the world it will be an indefinite preoccupation of mankind, and will in the end require some really effective world control. But we have to assume at the moment that the worst does not happen.

That apart, we are at a period in human development which is full of promise. The future can be enormously good for the human race if only it reaches out and exploits the situation for the benefit of mankind as a whole. The basis of the new potentiality is arising to a large extent from technology, but many other elements are at play. One of the most important and difficult tasks that face us at the moment is learning how to manage complexity and uncertainty, the two basic features of this period of transition which will last for the next 40 to 50 years.

I want to say at the beginning that while technology based on the discoveries of science is one of the main motive forces in the change, many other trends in the world are taking place which are partly caused by the rise in science and technology, and partly control it.

With regard to science and technology as such, one must remember that the basic increase of resources in nearly all the countries of the world since World War II has been enormous and so has the amount of research and development undertaken. In fact some 90% or more of all the research and development undertaken throughout human history has been accomplished in the last two decades. At the same time the lead time from scientific discoveries in the fundamental laboratory, to application in production on a significant level, is still rather long. It may be upwards of 30 years. And therefore, since so much of the research in quantity is recent and since the lead-time is long, we are only at the moment seeing the tip of the iceberg. There are many more things to come.

Science and technology have useful as well as less useful effects, and in fact the main challenge of the present time is to see what wisdom the human race and the decision-makers, in particular, can bring to bear in using these possibilities in a wise sense.

Another feature of our present time is the increase, the very big increase, in world population which we have seen over recent years. This population increase is to a very large extent due to the influence of improved hygiene, medical conditions, the conquering of particular diseases, and in fact, it stems from scientific research.

The change from the past is very well illustrated by the situation in the mammoth cities growing up in some parts of the Third World. The first city in this planet to reach a million inhabitants was London, but well into the last century, more people died in London than were born in it. The great influx of people from the rural areas dominated the growth of London. Life in the city was intolerable and unhealthy and people died very frequently.

At the moment, in big cities such as Mexico City, Bombay, Calcutta, Seoul, etc., on the average, 60% of the increase comes from the inhabitants already there, some 40% by migration from the rural areas. So the situation we are facing is very different from that of the past.

Until a year or so ago, forecasts of the continuing increase in population were rather alarming. Demographers of the United Nations were forecasting that the world population would level off at somewhere between 10 and 12 billions, somewhere in the middle of the next

century. However, there has recently been a very considerable decrease in the fertility rates in many countries and the levelling-off point of peak population will certainly be very much less than was originally forecast, and it will take place presumably a good deal earlier. But one cannot be too complacent because growth will go on to the end of the century to probably 6 billion that we will have to feed. The effects will show themselves quite differently in different places.

At the moment - and I am using a hypothetical example - we are adding to the world population a number of people equivalent to the State of Grenada, twice a day. This will go on for a couple of decades yet, because owing to the recent rapid increase in past decades, population in many of these countries is very young indeed.

One of the main problems is to provide food, another is to provide jobs. It is calculated that there will be a need to create about 2 billion new jobs, mainly in the Third World, before the end of the century and this is no easy task. The countries of the north including Australia are the rich countries. The countries of the south are presumably the poor countries, a very great over-generalization.

Generally, in the advanced industrialized countries, including Western Europe, North America, Soviet Union, the birth rate has been very low in recent years. It may be growing slightly but on the whole, the population of these countries will probably, by the end of the century, have fallen to under 20% of the total of the world. The great increase will be coming mainly from the less developed countries.

In countries such as Latin America, it is very probable that they will be able to cope food-wise and otherwise with their increased populations. Asia on the whole is in a better condition than some parts of the world. Much, however, depends on the success of the population policies of the People's Republic of China and of India, which are already countries with teeming millions and where the race between prosperity and numbers is still underway. In Southeast Asia, there are local situations which are interesting: for example, many countries fear the population pressures from the Indo-China peninsula. Recently the government of Malaysia has accepted a pro-natalist policy and wants to increase its population from the present 17 million to 70 million in the decades to come because it fears that unless this is done the country will not be able to maintain its identity in the face of population pressures from outside. So the situation differs very greatly from place to place.

The most serious situation I think exists in Africa where fertility rates are dropping less quickly than elsewhere, in some countries not at all, and where political difficulties and the advance of desertification indicate that Africa is likely to have many problems during this time of transition.

With regard to the problem of feeding the 6 billion by the year 2000, we have already had views this morning which are optimistic and I share them. I think on technical grounds, the possibility of feeding these multitudes is great and in fact we could still cope with many more. There is a great deal of confusion, and particularly confusion on the advice given to ministers in countries on this topic. The Club of Rome had a meeting in Budapest, Hungary, last autumn, jointly with the FAO and the Hungarian Academy of Sciences. The FAO estimates were regarded as reasonable but perhaps not taking into account sufficiently the economic, political and logistic aspects. On the other hand, one had groups, even a prestigious group in Washington whose report is about to come out, which indicates to the contrary that by the end of the century the United States is likely to become a food importing country. While however improbable this may sound, this is very disconcerting and confusing to people who have to make decisions, and I think it is very important that the agricultural scientific community be firm and reach consensus as to what the situation is.

But as I say, to my mind, the real problems in food are not technical. The technical possibilities of improvement are enormous, and there are many means: by better self-conservation methods to ensure the sustainability, by the production of grains with a higher nitrogen and better amino acid distribution, through genetic engineering and tissue culture, through the creation of plants which assimilate their own nitrogen, and by many other means. The long-term prospects for agriculture or agriculture improvement are very great indeed.

But we are still in the situation where even now when there is ample food in the world, there are millions of hungry, undernourished and malnourished people. The real problem is thus simply that the hungry are the poor and they cannot buy food. The basic issue in the feeding of the world in the future is in fact the socio-economic, political issue rather than the technical issue of whether the food can be produced or not.

A word or two about the environment. There has been great environmental concern of recent years and I think it is true that most of the pollution hazards that we have read about over the last few decades can be coped with, at a cost, high enough yes, but reasonable. There are, however, some longer term issues which are more intractable. Acid rain is still a very big, contentious problem. It becomes difficult because it is internationalized. Wind-borne pollution from the burning of high sulphur content fossil fuels reaches other places from the American Mid-West to the Canadian forests, from the furnaces and steelworks of the English Midlands and the German Ruhr to Scandinavia, etc., and international mechanisms on this sort of thing are not working very well. But beyond that, we are faced with difficult problems of great uncertainty, such as the question of carbon dioxide. A great deal has been written recently about the so-called

"green house effect" in which, with an increasing concentration of carbon dioxide in the air, the radiation from the sun is not reflected back into outer space as effectively as it was. The prospects are, according to a very large number of observers and the models in the atmospheric center, the research centre at Boulder, Colorado, and elsewhere, of a warming up of about something between one-and-a-half to four degrees when the CO₂ content of the air is doubled, and this may take place before the middle of the next century.

This warming would be twice as great at the poles than at the equator, would change the temperature gradients of the world considerably and thus change the patterns of precipitation. Canada might of course be very happy with the idea of warming up 2 to 3 or 4 degrees and pushing its agriculture up into the permafrost, but that itself would be quite a difficult transition I am sure, and quite a nice challenge. But for many parts of the world the changes would be disagreeable and extremely difficult to cope with.

Now this cannot be proved. The consensus at the moment is moving towards the fact that this is a reality. For the next 25 years, this will hardly be felt, as far as agriculture is concerned. It would be felt after that and the irreversible process would be rather difficult to change. It is composed not only of the increase in carbon dioxide in the air from the burning of fossil fuels but also the lower absorption of carbon dioxide owing to the cutting down of tropical forests. So it is really a global problem.

Now I am mentioning this essentially to indicate the difficulty facing governments as to how to manage problems of this kind. The uncertainties are great. It would be possible I am quite sure, to do a great deal of buffering but you cannot expect any government to change their policies on the burning of fuel, of coal and oil, owing to speculations of this kind which, although scientifically based, have great uncertainties. It is amusing to see that the nuclear scientists rather ironically are beginning to say that coal and oil are far too dangerous to use!

The environmental hazards are of course due to an increase in total human activity. I have calculated that in my lifetime the human activity on this planet has increased about tenfold. It was compounded partly of population increase in numbers, and partly qualitatively because the per capita consumption of the average citizen has also increased very greatly this century as our present ways of life in the so-called north indicate.

I come now to the question of the social consequences of technological change. We are facing a whole complex of very useful technological developments at the moment. The main ones are in the field of the new biology, the new genetics, and the development of microelectronics with

its extraordinary cost reduction and miniaturization. Microelectronics also articulate very well with many other technologies, such as glass fibre, holography, satellite techniques, and laser technology.

In aggregate, it seems to many of us that we are facing a genuine second wave of industrial revolution, and not merely discreet and new individual technological developments. We say this because the new technologies will apply across the whole spectrum of economic activity and indeed of individual activity, a phenomenon which has not really happened with new developments since the improvement of the steam engine by James Watt. Just as the first wave of industrial revolution enormously enhanced men and animals' puny physical force, so the new technologies add, if you like, a brain and a memory to machines for a very modest cost and increase the utility of machines and the reduction of labour.

In the few minutes that are left, I would like to discuss these consequences. They are very great for the individual, for societies, for employment, and in many other ways. The beneficent possibility exists for a great decentralization of decision-making, power and the political process. On the other hand, the very same techniques make it possible for "Big Brother" kind of dictatorships and societies to supervise and control the actions and even eventually the thoughts of the people whom they rule.

The biggest changes to be expected initially are in industry where for the first time there are real possibilities of automation. Initially this will mean the removal of dirty, disagreeable and dangerous jobs, but later on with the new science of mechatronics which is devising systems of manufacture from the beginning, there is the possibility of total systems of automation requiring a much smaller labour force.

The nature of industry will change with decentralization. Combined rural industrial communities can be expected, which is going to greatly benefit those people living in the country by increasing amenities without adding dirty manufacturers. The nature of industry itself will modify. There will be less distinction between various sectoral approaches. There will be a tendency for industry and agriculture and the social activities to merge. I think many people feel that in the future the large multinationals will be offering total agricultural systems including fertilizers, weed killers, and also the new varieties of seeds which they have genetically engineered and for which they hold the patents. There are many changes of this kind to be envisaged. I think the really important thing is to be sure, if we can, that governments, with the support of an informed public, will be capable of using the new opportunities deliberately and consciously to shape a better society rather than passively to attempt mere adjustment post facto to the consequences as a matter of expediency. In societies such

as those of the parliamentary countries, this is very difficult in view of the short electoral cycles. The problem of employment and the possibility of endemic unemployment is one of the biggest question marks. Certainly the new technology will create new jobs and particularly jobs of high skills. There is, however, increasing realization that in the long term we are likely to be able to produce all the resources required by a country with a small fraction of today's labour force, and that eventually the labour force needs of industry will diminish just as that of agriculture did 150-200 years ago.

Now whether these redundancies can be absorbed in the social sector or not is again a matter of question. But it seems to me most likely that we will reach a period with great hope and benefit to society when we must turn from the question of employment, unemployment and underemployment to that of occupation. The occupation of individuals will be in several parts: a productive paid occupation, as today, but occupying a very much smaller part of a person's lifetime and hours of work as well as a number of subsidiary unpaid activities or occupations of a craft, scientific, educational, sport or artistic nature that are partly supported by the state indirectly through local communities, and by the provision of training and tools. One can see that kind of utopia where it would be possible for the individual to develop himself with leisure and with creative occupations. But this is a long way off. Nevertheless, such a scenario is not as unrealistic as it seems because as jobs become scarce, there will be a tendency for people to demand a more equitable sharing of employment (shorter hours, shorter weeks, longer vacations, etc.) and such a situation, as I mentioned could appear gradually if governments are willing to think ahead.

These are all the matters I have time to talk about. Many others exist but the challenge is a global one. We are seeing a gradual de facto erosion of national sovereignty. Individual nations have less and less control over their own destinies. The transitional needs in the way of governments are extraordinarily difficult and extraordinarily large. So we come back to saying, as Dickens said, "this is the best of all times and the worst of all times". The possibilities for improvement, for human betterment, are enormous. The obstacles ahead are difficult but they can be overcome. But in order to overcome them, we must keep our eye on the trends and gradually attack the problems before they reach crisis levels. I am sure that we can do this. Thank you.

MR. MARCEL MASSÉ (Moderator): Thank you very much, Dr. King. Our next theme speaker is Dr. Léon Martel. Dr. Martel is an author and consultant specializing in analysing economic, political, technological and social trends, and forecasting their future evolution. He is a former member of the Hudson Institute and served as its Executive Vice-President during 1977-1980. There, he was project leader for studies for the executive office of the President of the United States, the Vice-President and the Secretary of Defence. He also co-ordinated the work of the Institute's prospects of mankind study and contributed regularly to its corporate environment program. Prior to coming to Hudson, Dr. Martel was a member of the Augsburg University Faculty, and earlier on military duty, he was in charge of the Russian and East European desk in the navy's European Intelligence Centre, serving later as an intelligence research analyst at a national security agency. Dr. Martel holds a BA from Dartmouth and an MA and PhD from Columbia University. The theme of Dr. Martel's speech will be "The New Emerging Global Environment", the characteristics and implications of this changing environment in terms of economic growth, food production and population growth, and how society can face the challenge of the changing environment. Dr. Léon Martel.

DR. LEON MARTEL (Author and Consultant): Thank you, Mr. Chairman, Mr. Miner, Dr. King, fellow panelists and distinguished delegates to the Centennial Forum, I share Dr. King's apprehension about looking into the future and making forecasts, an apprehension that I think was expressed very well by the great Danish physicist, Niels Bohr who once said, I think with equal parts of wisdom and humour, "It is very difficult to make accurate predictions, especially about the future". More recently, in the Wall Street Journal, he warned, with economical forecasts obviously in mind, "He who lives by the crystal ball will soon eat ground glass". On the other hand, there is the more casual approach of the former President of the United States, John Calvin Coolidge, who was known for his rather laconic observations about life and public matters. He once said about the future, "If you wait long enough, it will be here". Well, the problem is, of course, that if we wait long enough, it will be too late. We would like to know as much as we can now about what will happen tomorrow. And yet, this seems increasingly difficult to do. After a period of relative stability and certainty in the decades following the Second World War, a return to the status quo, we find ourselves now on all sides it seems, facing less certainty, less stability.

And so we should be grateful indeed to those who will play the role of the fool, the jester who will make the forecasts about things that are good and things that are bad.

One man who did so in a remarkable essay written 50 years ago, was the great British economist, John Maynard Keynes. His essay was entitled "The Economic Possibilities for Our Grandchildren". In that essay written in 1920, Keynes said, "I draw the conclusion that the economic

problem, the struggle for subsistence, may be solved or at least be within sight of solution within a hundred years. "This means", Keynes went on, "that the economic problem is not, if we look into the future, the permanent problem of the human race." Now the good news is that half a century after Keynes wrote that essay, he is right on target; and the bad news is that we still have a long way to go. We are still only half-way to the solution of the economic problem, to the solution of the struggle of subsistence.

This morning, I want to talk about both the good news and the bad news, the half century of achievement to date and the challenge of the next half century.

My thesis is in two parts. The first part is that the achievement that we have enjoyed to date has brought a new global environment, an environment characterized by a rising of food production and a slowing rate of population growth worldwide. The second part of the thesis is that this new emerging global environment both offers hope and poses a challenge. The hope clearly is that the economic problem, the struggle for subsistence, and in particular the struggle to adequately feed the world, can in fact be solved pretty much on Keynes' schedule, within the next 50 years. The challenge is to do so, but to do so to the benefit of all, both the consumers of food and its producers.

Let me turn first to the achievement. Two hundred years ago, as we well know, another Englishman, another prophet, another fool, jester Thomas Malthus, warned that population would grow geometrically. That is, it would double in shorter and shorter periods of time, while food would only grow arithmetically, that is in equal additional increments. And so, there would be a gap, and it would be an ever widening gap, a gap between the numbers of people and the food to feed them. As the gap widened, there would of course be increasing misery, starvation and famine.

Ironically, at the very moment that Malthus was writing, England was launching a peaceful revolution, a revolution that would prove him wrong. It was the industrial revolution. Industrialization, as it has steadily reached more and more nations, has brought for the first time in the history of the world, a period of sustained economic growth. And with this growth is emerging the new global environment, an environment in which food production has vastly increased while at the same time, the rate of population growth has slowed. In other words, it is the very opposite of Malthus' predictions 200 years ago.

If we look at food production worldwide, we see that since 1955, total world food production has increased at an average annual rate of

nearly 3%. On a per capita basis, the rate has been nearly 1% per year. And again, this year we are headed for record levels of food production. If you look at the breakdown in production between the developed nations and the developing nations, looking particularly at the figures reported in the last two annual issues of the World Banks, "World Development Report", you will see that the rate of increase in food production has been higher in the developing nations than in the developed, reversing a trend that had existed until recent years.

However, we also know that the rates of population growth in the developing nations are still higher than in the developed nations. Therefore, the per capita increase in the developing nations is lower. Even though it is lower, it is still strongly positive in all areas of the world except one - that area is Africa, the sole area where it is still negative.

The reason for this continued increase in food production, especially in the developing nations, has been simply the growth of agricultural technology in the advanced nations and the spread of that technology to others. It does not stay in the advanced nations, it moves on, as it is doing. The spread of that technology so far - with improved crop strains, greater use of fertilizers, mechanization, has only recently started in the developing nations. And yet already, as that older technology is spreading to new nations, a new generation of technology is beginning in the developed nations - a generation based on engineering the genes of plants and animals to increase their tolerance to disease and to variations in weather, to produce still larger yields, to emphasize the most desired characteristics. Just last month, the United States Department of Agriculture, some think belatedly, announced an ambitious shift in its research emphasis from conventional plant and animal breeding programs to genetic engineering and related technologies. In effect, the green revolution, which increased yields so much is being succeeded now by a gene revolution.

Still ahead is the prospect of manufactured food, such as high protein substances obtained from the conversion of cellulose into glucose. These may be available first for animal feed, thus eventually releasing grain production for other purposes.

We have vastly increased our ability to produce food, and in the future we will continue to do so. There is no plateau visible to limit the potential increase of food production. But will we be able to do so for a world whose population is still growing? I think the answer is yes, and it is yes because the rate of growth of the world's population is no longer rising. The rate of growth is now in fact slowing and has been slowing for some time.

One of the first results of the industrial revolution, by improving food distribution, by improving sanitation and public health, was

indeed to lower death rates. This rapidly increased the population and in fact the population increased at a growing rate until the early 1960s. But then as more countries matured economically and achieved economic development, a second result began to take effect, a result which meant the lowering of birth rates. This occurred for a number of reasons. It occurred simply because more children survived childbirth and infant diseases. Families did not have to have as many children in the first place. Also more public and private programs became available which meant there was less need for large numbers of children to take care of parents in their older years. Also and dramatically, particularly in the most developed nations, more women have entered the labour force, have married later, have postponed having children, and have decided to have fewer. And yet, while all these trends are going on, technology is steadily advancing - the technology of family planning and birth control to provide the means to enable people to carry out the decision to have fewer children.

Since the early 1960s, the population growth rate in the world has been falling. In individual countries, the fall is roughly proportional to the level of economic development. In the most developed countries, the fall has been dramatic. In the developed nations, the annual rate of growth of population has fallen from 1.2% in 1960 to a current rate of about .7%. In the developing nations, the rate of growth is higher and it is dropping much more slowly but it is still dropping, it is not going up. It is dropping from an annual rate of 2.3% in 1960 to just over 2% today. This drop can be expected to continue just as it has in the developed nations.

Because this drop is occurring even faster than most demographers anticipated, the United Nations' fund for population activities has each year lowered its estimate of the eventual peak number of people in the world, and the year that peak number is likely to be achieved. Ten years ago, the United Nations' middle range estimate was that we could expect a world of 15 billion people, that would be the peak number, perhaps in about 100 years, by 2175. In 1981, it had dropped its estimate to a peak of 10.5 billion in the year 2110. Two weeks ago, it announced a peak number of 10 billion at the end of the next century, in the year 2095.

Curiously, the fund also uses the word "stabilize" or "level off", implying that population will peak and then magically, it seems to level off and stabilize at that peak number. There is no logical reason for population to stabilize, and a much stronger reason for it to continue to drop. The population growth rate today is falling because fertility rates are falling. As those fertility rates fall below replacement levels, as they have in many of the developed nations, their further fall becomes self-reinforcing because each woman's fewer births means still fewer births in the succeeding generations.

It is strange indeed at this time, in 1984, when the world's population is indeed still rising, to contemplate its ultimate fall, but it may well turn out that preventing the downwards fall of the population will require far more sophisticated and comprehensive public policies than slowing its upward rise. Several European nations with falling total populations today are already facing this problem with some consternation. This then is the new emerging global environment; rising food production, and a slower rate of population growth in the world. It offers hope, but as I said in the beginning, it poses also a challenge. And because the environment is new and the challenge is new, the response must be new too. The main problem of food is no longer the one that it was for centuries, of being able to produce enough. The problem has shifted. The new problem is to see to it, as Mr. Whelan reminded us this morning in his opening remarks, that what is produced reaches those who need it to consume. We can produce enough to feed everyone in the world, but everyone in the world is still not well fed.

This is a very difficult problem, for the nations of the world vary greatly. They vary in their numbers of people, they vary in their physical endowments, they vary in their institutions, they vary in their economic growth, they vary in their incomes. Some European nations are losing population but many developing nations have more than they can adequately support. Even though their growth rates are falling, they face the prospect of still more people. Some nations are blessed with abundant resources, as is this one. Some with far less. Some have long established strongly supported institutions for mediating conflict and for developing public policy. Others are just creating such institutions. Some have robust economic growth, with high per capita incomes; others, far slower growth, some not at all and far lower incomes.

In such a global environment, there is clearly a mismatch. There is a mismatch between producers and consumers. We have, very simply, producers who can produce more than consumers have the means to purchase. How then can we close the gap, the gap between producers and consumers, to see to it that the consumers receive what they need and that the producers receive a fair return for what they provide?

I think the beginning of wisdom in this matter is to understand that there is no one solution that is going to work in all cases or work at all times. There are a variety of responses, which need to be made differently, in different cases and different times.

Let me mention just three of them. One is old, familiar and frequently discussed. It is indeed useful but only as a temporary emergency measure for special situations, not as a long-term ongoing solution. This is direct food aid, direct food aid from previously accumulated stocks or from new production. As a response to food crises that are brought on by flood, drought or other emergencies, whether they be natural or man-made, it is obviously a necessary measure. It is today,

though, one done by a number of agencies. It could be greatly improved by greater co-ordination among agencies. It could be made more certain by a larger accumulation of stocks as the population of the world, particularly in the developing nations, continues to grow. And above all, it could be made more effective by ongoing planning and adjustment to this evolving global environment.

A second response is to encourage more developing nations to become food producers and to assist them in doing so. This requires two kinds of help. One kind is help from the outside in the form of technical assistance, in the form of education, in the form of economic aid. But the other help, which we also must not forget, requires changes from within the developing nations, especially through policies that create an environment containing incentives rather than disincentives to food producers. Part of Africa's problem today is the disastrous policy of many of that continent's nations to favour urban dwellers by keeping food prices low. This is a disincentive to local producers. It impoverishes them and it simply drives them off the farms and into those burgeoning cities.

And thirdly and most difficult and yet important in the new emerging global environment, is to recognize that not all nations are equally able to be food producers. Some, clearly, are better endowed for it than are others, but not all nations have to be their own food producers any more than they have to be their own energy producers or steel producers or auto producers. We are slowly becoming a world developing division of labour, a division of labour that reflects the division of labour already developed within each of our countries, where different people with different skills and different abilities produce different goods and different services. Acknowledging this, encouraging this, developing this division of labour among nations is the best hope we have for closing the gap between the producers and the consumers and for closing that still larger gap between peoples of different political persuasions.

In sum, the new emerging global environment thus offers a new hope. We can, for the first time in history, produce enough to feed the population of the world that we project for the future. At the same time, it offers a new challenge. How can we distribute that production for the benefit of all, both the consumers and the producers?

This is a common cause. It is not a matter of politics. Empty stomachs know no politics, and politics has nothing to gain from them. But as we know, this common cause demands uncommon co-operation. And yet the co-operation has already begun. Its foundation has been laid in the formation and the activities of this international organization and of others similarly dedicated to improving the lot of all of us.

What is required now is to carry that co-operation still further to an understanding of the hope that is offered by this new emerging global environment, to carry it to the realization that unilateral and bilateral actions in the temporary interest of a few must give way to common actions in the permanent interest of all. If such co-operation can be achieved, it will indeed add strong new threads to the fabric of interdependence steadily being woven throughout the world by like-minded international organizations. And it will mean that our grandchildren will not only see the solution of Keynes' economic problem but also that they will be far closer to that day when we will all be moved less by the fear of what we might do against each other and more by the hope of what we can do for each other.

Thank you very much.

MR. MARCEL MASSÉ (Moderator): Thank you very much, Dr. Martel. Now we have about 20-25 minutes for questions. Dr. King, you have been the chosen one for the first question. I must say, it is one that is difficult, and it is this:

You mentioned that the existing north-south approaches in narrowing the disparities between the rich and poor countries have not succeeded. Why is that and what other approaches can we take in narrowing this gap?

DR. ALEXANDER KING: (Theme speaker): Mr. Chairman, this is an impossible question. It is impossible in two respects. First of all, no one knows the answer. Secondly, if one did know the answer, it would take two to three hours to explain it. But I think there is hope, but hope which is unlikely to be achieved through the existing mechanisms. I think that we have classified the developing countries in a rather arbitrary sense and they include countries of all kinds of categories, from rich places like Saudi Arabia down to small island states with no viability at all. And anything we say about the developing countries is a generalization which applies to a small fraction of them. I think the future approach will not be in a north-south dichotomy orientation but will be much more a regional approach in which countries at all stages of development co-operate together on a basis of long term in life and self-interest. And this is becoming increasingly necessary because of not only the realization of the interdependence of countries but the fact of the reality of this. The problem, to my mind, seems to be to create in the developing countries a sense or a capacity for self-reliance, not self-sufficiency but self-reliance. By self-reliance, I mean the capacity to manage interdependence. This is not easy, there are many ways of approaching it, but I think in summary we have got to find new approaches away from the present north-south dichotomy, the issue being deadlocked.

MR. MARCEL MASSÉ (Moderator): Thank you, Dr. King. The second question that was mentioned to me is for Dr. Martel. It has to do with something that was not mentioned at all, and that is the possibility of nuclear war. The question was:

Given that you were going to talk about the global environment, how come neither you nor Dr. King talked about the possibility of nuclear war and how we should be involved in dealing with that possibility?

DR. LEON MARTEL (Theme Speaker): I will be glad to try to answer that. I did not mention it because I thought it would come up in a good question, which it did. Clearly, if we look at what could forestall an optimistic projection based on the hope that I have talked about, I think there are only really two kinds of disasters that could forestall that future. Certainly, any kind of disaster could postpone it, slow it down, make it more difficult, but only a thermonuclear war involving a major exchange of weapons between the only two powers who have enough to seriously stop things, the Soviet Union and the United States, or some sort of a catastrophe to the fragile environmental envelope that supports life here on earth, only those two really could in effect cancel the future. I think that in both cases, they have very low probability. Since the question deals with the nuclear one, let me talk about that one first.

A nuclear war less than a major exchange of weapons between two superpowers would certainly be catastrophic, especially to the nations involved. It would cause a great deal of difficulty and it would slow down things for the future, but it would not in effect cancel the future. We could pick up and go on as we did after World War I, as we did after World War II, as we did after the Depression, world-wide depression and so forth. So the real scenario to fear is the scenario that involves the Soviet Union and the United States. Most of the ways in which this has been suggested, I do not think are realistic or likely to occur. I reject the madman theory. Ronald Reagan wakes up one morning, he turns to Nancy and says, by gosh this is it, let us go get the evil empire. Or the Kremlin Chairman, Chernenko, gets up and he says let us take care of this problem right now. No! That is not going to happen, neither men have the power to do that, there are enough checks on that occurring.

A second scenario is the accident scenario made popular by the movie "War Games", where some kid playing around with the computer gets into the system and starts a war. No! There are simply too many checks against that happening.

A third possibility is a bomb going off in some other part of the world and then the United States and Soviet Union kind of joining in. I doubt very much that if a Third World country were to explode a bomb, that Moscow would bomb New York or we would bomb Moscow.

And so there remains really only one scenario that is viable, and that is the scenario involving the major interests of the two powers, and that principle major interest is in Central Europe. So one can indeed imagine a scenario in which a problem starts in Central Europe that causes each side to successively raise its alert, move its troops and begin perhaps military movements across borders. And if that happens, then the way the two parties are structured, in terms of their arms, the way they have been exercising, indicates very clearly that the United States and the West would probably at some point have to resort to small nuclear weapons to stop a mass Soviet force.

If that happened, we would then cross the threshold into a new type of warfare where there are no further clear thresholds. One could then imagine an escalation that would go on up to that frightful exchange. That is the one scenario which I think has probability, and yet I would say that the probability is still fairly low. And it is fairly low particularly in this interim period now where we have, in both countries, rather old leadership, in a period before the elections in the United States, in a period where obviously new leadership is going to arise in the Soviet Union. I do not think that we will see any kind of risk-taking that is going to lead to that scenario developing.

So in sum, my answer is very, very low probability in one scenario, but still an existing probability and thus an existing responsibility to make sure that we can prevent such an escalation from occurring, and we can check it underway if it does occur.

MR. MARCEL MASSÉ (Moderator): Thank you. Dr. King, the next question is for you, and it has to do with your statement that the real problem is not the technological problem but the treatment of the socio-economic political issues. And the question is:

Given the relatively low level of public information and the fact the politicians react to the views of their voters, how can we hope that the proper solutions from a socio-economic political point of view will eventually be adopted?

DR. ALEXANDER KING (Theme Speaker): I think that is a very good and realistic question, and one which preoccupies me very much. Nevertheless, I am optimistic here. I think appreciation by the general public of the nature of the present situation, of its good and bad, its constructive and its negative aspects, has grown steadily over the last ten years. The media, at its best, has helped enormously here. At its worst, it has made things bad by over-dramatizing and being selective in a wrong sense. But clearly, experience indicates that decision-makers cannot act unless the public is fully aware of the reasons for the action, and this is fully recognized. The Club of Rome, which I am concerned with, has in fact as its main task, that of

starting debates which in fact increase public awareness of situations. We do not attempt to reach consensus among ourselves. Our only concern is with the future of humanity and the need for the individuals throughout the world to understand the basis of situations on which political action will have to take place.

MR. MARCEL MASSE (Moderator): A question for Dr. King.

We have a major change in communications, in terms of speed, coverage, effectiveness. What are the impacts of this on the questions of food and management of future problems? Does the communications information revolution affect the environment that you have described?

DR. ALEXANDER KING (Theme Speaker): Yes, I think it does affect it, and it is likely to affect it still more. It affects it both for better and for worse. It affects it for better in that a more realistic appraisal of the situation is possible than hitherto. Events taking place all over the world can be taken into account. On the other hand, in many decision-making circles, there is great confusion because of the excess of information. It is very difficult for people in front of a mass of papers to know what are the critical issues in a situation. I think the basic problem here is that the human being can take into account four or five variables at a time as a maximum. Yet, in most complicated problems, the number of variables is very much greater and the information appearing about these variables is also, with the new communication technologies, coming in quickly. The distinction, therefore, between what is important and what is significant and less significant is more difficult. Accordingly, we are seeing far more in the way of policy analysts and others offering help to the decision-makers. But this is a situation likely to evolve considerably in the next two years.

MR. MARCEL MASSE (Moderator): A question for Dr. Martel.

You mentioned rightly that one of the reasons for inadequate food production in Africa lies in inadequate price policies. What happens when prices are formed not by domestic price policies but by international price policies, because the commodities are internationally traded?

DR. LEON MARTEL (Theme Speaker): Well in that case, we have another problem, which is that higher international prices make it more difficult for the people in the urban areas to afford these commodities. The way to handle this problem is not by a solution that reduces the opportunity to produce locally. It lies instead, in ways that provide incentives to local producers so that their prices are supported locally and at the same time, in ways that can create a situation where the people in the cities can afford it. The subsidization really has to work the other way. Now nobody likes these

kinds of subsidization because obviously they interfere with the operation of the free market. But as I pointed out, we are indeed all differently endowed at this time. There is some hope that the gap between our wealths will narrow, as it has narrowed, between the middle income and the higher income nations in the world, and hopefully eventually will in the lower income nations, but until that occurs, there has to be temporary emergency measures. However, the temporary emergency measures must be taken in such a way that they are not seen to foreclose the very things we want to have happen in the future. One of the things we want to have happen is that, where possible, the developing nations will be able to produce their own food. It is therefore a matter of re-thinking the policy to see what its long-term consequences will be, and to apply the policy that will maximize the real goals that you want, not just the temporary satisfactions. It is necessary to do that. More nations have not thought that through. Perhaps in some cases, it is because they have not had the experience but as we gain that experience, now is a chance to do it. The difficulty is that once some of these policies are in place, it is very, very hard to reverse them. So it is still more important then that we think through what the consequences will be in order to maximize those that we want and minimize those that we do not.

MR. MARCEL MASSÉ (Moderator): Thank you. Dr. King, I have received a series of cards and I am trying to phrase the question properly but it looks a bit like one of René Dumont's questions, which is:

Hunger and poverty is due to the plundering of the richer nations, and how can we find solutions that are other than political?

DR. ALEXANDER KING (Theme Speaker): Yes, this is a René Dumont question, I quite agree. I think it is very fundamental. We are really dealing with the basic problems of human nature, and the fact that greed and egoism and love of dominance and so on rule very much of politics. In a desperate situation, and we may still face some desperate situations, it is obviously necessary to reach some kind of social compromise which allows society to go on and to improve. It seems to me that given the inherent egoism and greed of people, that knowledge of an overall world situation, including the dangers and the promises, demands a greater acceptance of what I call common self-interest of an enlightened type. The human nature aspect of egoism in the bad sense, can be dealt with if people can be persuaded to accept their children and grandchildren as an extension or projection of their own egoism, which they commonly do, and try to work for a situation in the world which will persist long enough to give their visible progeny, children, grandchildren, in some cases great-grandchildren, a possibility of a reasonable kind of life.

Nevertheless, I find it disappointing that so many people I meet feel that the world is going to bits. They say, "eat, drink and be merry, my children, my grandchildren will fend for themselves". That is, I think, something which I deplore more than almost anything else.

MR. MARCEL MASSÉ (Moderator): Thank you, Dr. King. Next question.

Dr. Martel indicated that not every country needs to be a food producer. How do countries without export industries or natural resources get food? Does Dr. Martel envisage a category of permanent dependence on food aid?

DR. LEON MARTEL (Theme Speaker): No, not at all. I think that we have seen enough experience of different nations faced with the problem of how they do survive and how they grow, to indicate that there are a number of ways of handling this. We have seen nations who have built themselves up as "entrepôt" type nations, such as the East Asian nations, Singapore, Hong Kong; nations who have been able to do manufacturing, such as Taiwan, Japan of course; nations that are not richly endowed, who by applying themselves in certain skills and certain areas have been able to provide a service or a good that other nations need, and thus can themselves become nations that earn the income to buy the food and other resources they need in the world.

Now again, all nations are not equally endowed and some find themselves in a kind of world that has evolved in a situation where they may have very little to offer. Then one can imagine solutions which have been applied in the past and perhaps will be applied more in the future, of joining together with other nations, of in effect pooling resources either through formal arrangements or less formal arrangements to take the benefit of what the two have. I do not really believe that we should think in terms of a permanent underclass of dependent nations, but that we should encourage nations and help them when we can to develop particular expertise in goods, and particularly in services, which is the major economic activity of the post-industrial era so that they can indeed earn the income to buy the things that they cannot produce themselves.

MR. MARCEL MASSÉ (Moderator): Thank you, Dr. Martel.

Dr. King, if technology displaces more people from gainful employment than the creation of technology, and if also the jobs that are created are usually highly skilled jobs, by whom and how will the unemployable be supported?

DR. ALEXANDER KING (Theme Speaker): Well, I was trying to suggest a way around this problem. I am convinced that if we go on with our present systems, there will be eventually endemic technological unemployment in contrast to ordinary cyclical unemployment. I think this will be unsupportable among other things by the trade unions, workers, employers, any organization, etc. of different kinds, and that it will have to be dealt with by the sharing of wealth. I think that even now there is a sense that the kind of pejorative aspects to unemployment, which was regarded as morally unsupportable in the past, is beginning to change. One sees it arising in European countries, a number of them having quite large populations which have not had jobs in the ordinary sense. Individuals are going more and more into the so-called unofficial economy, working very often outside the fiscal system and outside the normal system, providing services themselves. In some countries, like Italy, this has gone really rather far and in France, where I live, quite far also.

I think there are many ways but in the long run, I think the basic situation will be that the automation of industry, in providing very much higher levels of productivity, is capable of producing the resources to support a society. But these circumstances of automation and unemployment coming from it will necessitate the creation of a social system which is vastly different from that of today, including different approaches to the distribution of wealth.

MR. MARCEL MASSÉ (Moderator): Thank you, Dr. King. Dr. Martel, since you answered the first question on nuclear war, I have another question for you.

How will a nuclear war, and I think any war, in the Middle East, affect grain production and trade in the world in the 1990s and over the second part of the 1980s?

DR. LEON MARTEL (Theme Speaker): Well, it really depends of course on the kind of nuclear war that we are talking about. One country may use a weapon against another country in the Middle East, and maybe only one weapon. Hopefully that would be the situation in the nations, particularly the Indian nations, that have prepared themselves adequately, which unfortunately they have not done yet and would deal with the first nuclear explosion in such a way that the next one does not come for many years. Then we might have just one incident and not a nuclear war.

In any event, a nuclear war in the Middle East would not last very long because there are not that many nuclear weapons in the Middle East. Any activity of this kind, of course, is immensely disruptive because it immediately causes panic to spread throughout this increasingly interdependent world. It causes confidence in instruments to fall,

hoarding to occur, the price of gold to rise - all kinds of things that follow immediately from a conflagration, particularly one using nuclear weapons. We do not even know what would happen but the panic would be disruptive to all markets, including grain markets, throughout the world.

However, the basic need remains. The one resource we need in supplies every day is food. Trade will continue in some fashion. It will be disrupted. The Middle East nations are not major grain producers or grain exporters, so the total amount of production would not be harmed. What will happen will be a disruption, a disruption which after a number of months, depending upon the seriousness of the war in the Middle East, would return back to some status quo. So although it would be a serious temporary problem, it would not result in a permanent change or permanent harm to the grain markets and grain production in the world.

MR. MARCEL MASSE (Moderator): Thank you Dr. Martel. Now the last question for you, Dr. King.

You made reference to the potential of centralized versus decentralized integrated management and production. However, given the present concentration of economic power and control of information, how do you see that evolving? What is likely to happen and how is it likely to happen over the next few years?

DR. ALEXANDER KING (Theme Speaker): I think there are a number of issues in the context of what you said. The control of information, I think, is grossly exaggerated. There is a great deal of information available to all countries and too much importance is being given to the so-called withholding of information by the more powerful countries. The decentralization question I think is a bit different and one which can only be tackled little by little. There is the question of political decentralization. It is very important in many European countries, such as France where I live. There is a great deal of desire to decentralize a great deal more. It is very difficult to achieve, but many of the new communication approaches should make this possible.

What interests me most - I do not know whether this is inherent in the question or a combination of questions or not - is the possibility of decentralization of industry in rural areas. The new industries would be much cleaner, in smaller units, using less materials and energy than in the past, and capable of working in small units. This does enable a new kind of combined rural/industrial community to arise. I think in a country like India, for example, it could be very useful indeed in bringing amenities and more opportunities into the countryside. It

would also lessen the flow from rural areas to the big cities where employment is not available and where life conditions, although less boring perhaps than in some of the country across from which people emigrate, are nevertheless pretty intolerable.

MR. MARCEL MASSÉ (Moderator): Thank you, Dr. King. That is unfortunately all the time that we have for questions. We now have to go to the first symposium panel. As you know, we have three panelists: Dr. Clive James, Mr. Donaldson and Mr. Laserson. Before, however, we go to the panelists, I would like to give a very special vote of thanks to our two theme speakers for their really enlightening speeches and for the visions they have given us of our possible futures. Thank you.

Session I - Panel

Our first panelist is Dr. Clive James. Dr. James is currently the Deputy Director General for Research, International Maize and Wheat Improvement Centre in Mexico. He has held that position since 1981. Prior to that appointment, Dr. James served as an agricultural advisor in the Natural Resources Division of CIDA (The Canadian International Development Agency) from 1977 to 1981, and he also served as a plant protection officer at FAO headquarters in Rome. Dr. James also worked in the Canadian Federal Department of Agriculture as a research scientist conducting studies on plant diseases during the years 1968-75. Dr. James was educated in England and holds a BSc and PhD from Cambridge University. He has had wide teaching experience and he is the senior author of over 50 scientific publications. Dr. James is also the recipient of an award of distinction for outstanding contribution to plant protection awarded at the 9th International Congress on Plant Protection in 1979. Dr. James will be discussing the future role of science and technology with respect to grains and with a special emphasis on wheat. In particular, he will be identifying some constraints to production and outline possible ways of increasing the production of wheat, especially in developing countries. Dr. James.

DR. CLIVE JAMES (Deputy Director General for Research, International Maize and Wheat Improvement Centre, Mexico): May I have the lights down, because I am going to be using some slides.

Mr. Chairman, honored participants. As a Canadian working for the International Maize and Wheat Improvement Center, usually known by its Spanish acronym, CIMMYT, I am grateful for the opportunity to address this Centennial Forum. The challenging subject that I have been asked to discuss is the future role of technology for increasing wheat production. Since experience of the past is often one of the best indicators of what may be possible in the future, I plan to first present CIMMYT's assessment of the role that technology has played in increasing wheat production in the developing countries in the past

two decades. In doing so, I will briefly talk about the Center, review recent wheat production and consumption trends in the developing world, and then share with you what I feel is the future role of technology for increasing wheat production.

THE CIMMYT MANDATE --- CIMMYT is a nonprofit, autonomous agricultural research institution dedicated to supporting and complementing the research and production efforts of developing countries in two of the most important cereal crops: maize and wheat. The Canadian International Development Agency (CIDA) and the International Development Research Centre (IDRC) are both donors to CIMMYT and to the Consultative Group for International Agricultural Research (CGIAR) of which CIMMYT is a member institute.

CIMMYT's primary research thrust is to develop new and superior germplasm of maize, wheat, and triticale with broad adaptation and the potential to produce high and dependable yields over a wide range of production conditions. Crop production research issues are also of increasing importance in the research agenda. Our mandate is global and involves collaborative ties with virtually every maize and wheat producing country in the world - approximately 125 countries.

By operating the largest international testing networks in the world for wheat and maize, through which germplasm and information is freely exchanged, CIMMYT has facilitated the integration of the research work of thousands of scientists and hundreds of organizations worldwide. This has led to an acceleration of research efforts and has resulted in the release of hundreds of high-yielding maize and wheat varieties with broad adaptation and yield dependability in both developing and developed countries.

Recent Trends in Wheat Production -- Let me now turn my discussion to recent trends in wheat production. At present, there are 29 developing countries that produce wheat on more than 100,000 hectares. Ninety-three percent of the developing country production is concentrated in five countries: China, India, Turkey, Pakistan and Argentina. Increases in wheat production in these five countries over the past two decades have been remarkable. The late Dr. Glenn Anderson, a Canadian and former Director of the CIMMYT Wheat Program, served as one of the field commanders of the Green Revolution in India where wheat production has more than quadrupled over the last two decades and average yield levels have more than doubled. In China, the world's third largest wheat producer, production has more than tripled. Pakistan has experienced a doubling in national production and in average yield levels. More recently Bangladesh, whose national wheat program receives support from a CIDA-funded CIMMYT program, has experienced a 12-fold increase in national production over the past ten years through the introduction of early-maturing, high-yielding varieties. (For wheat production data on India, China, Pakistan and Bangladesh see figures 1-4).

FIGURE 1

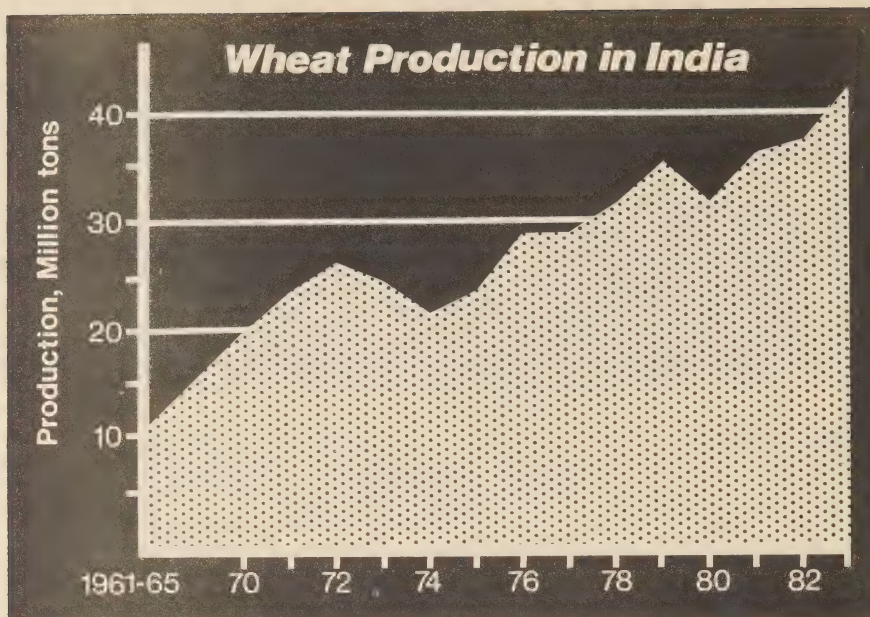


FIGURE 2

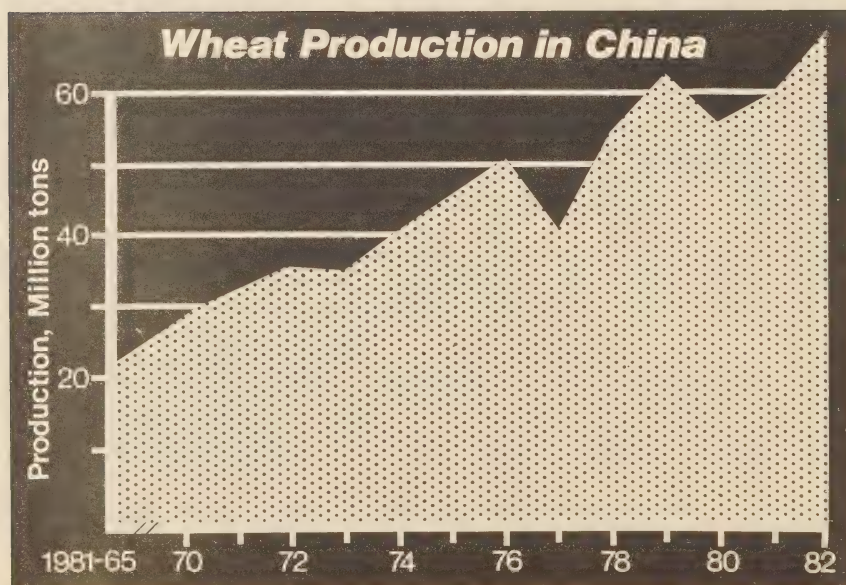


FIGURE 3

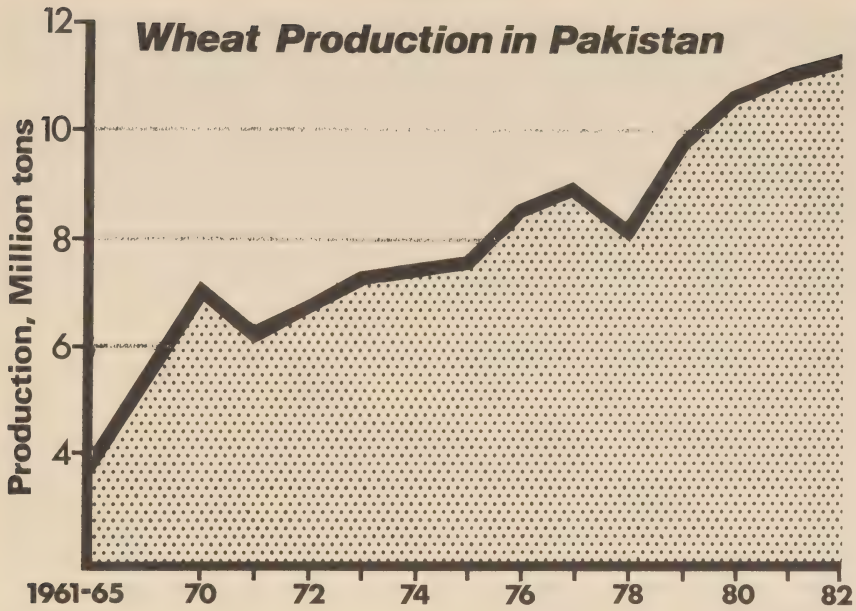
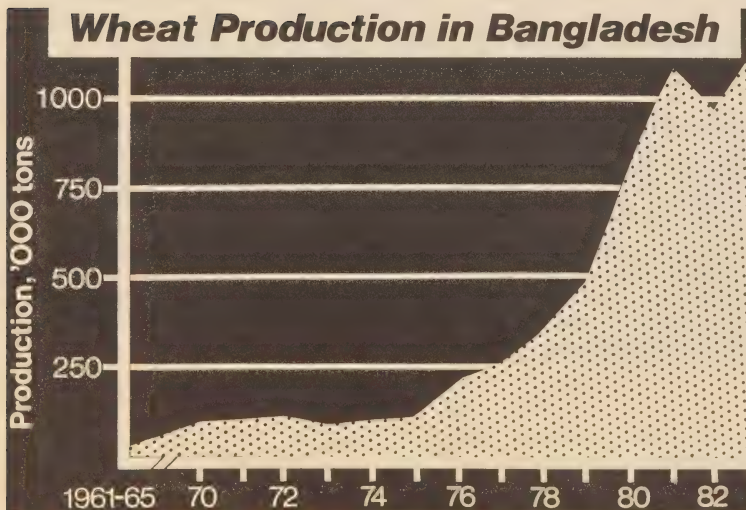


FIGURE 4



Improved technology is a major factor that accounts for wheat's leading production performance among the cereal grains over the past two decades. The high-yielding dwarf spring wheats, developed by my colleague the Nobel Laureate Dr. Norman Borlaug, have had a major impact. Today, there are nearly 40 million hectares in the developing world and up to 10 million hectares in the industrialized countries that are sown to these high-yielding varieties. It is conservatively estimated that genetic improvement alone has increased yield by 200 kg per hectare and adds 10 million tonnes annually to world wheat production worth approximately Cdn\$2.3 billion per annum. This is sufficient to provide approximately 70 million people in the developing world with 65% of their annual caloric consumption.

Recent Trends in Wheat Consumption -- Over the past 10 years, the average demand for wheat for all uses in the developed countries has levelled off at about 200 kg per capita per year. Developing countries have a per capita utilization of about 60 kilograms per year but it is rising fast. Wheat has become one of the single-most important sources of calories and wheat demand has increased by about 75% over the last ten years - a phenomenal 5.4% annual growth rate. Were it to continue at this pace, it would result in a doubling of Third World demand for wheat in the next 15 years! Indeed, roughly two-thirds of the 44 million tonne increase in world wheat trade over the last decade has been destined for the developing world.

The Implications of these Wheat Trends for the World -- To date, most of the benefits of improved wheat germplasm has accrued geographically to the major producing countries, and biologically, to the more favored environments in terms of soils and moisture availability. In recent years, however, wheat production by the major producers has tended to stabilize. Since these countries already have a high percentage of their wheat area in high-yielding varieties, and the growth in irrigation has slowed, it seems unlikely that developing country production growth rates in the 1980s will be as high as in the past decade.

While we cannot neglect the more favored environments, where substantial yield improvements are still necessary and achievable, it appears that the major unexploited production gains to be made through the application of new technology will be in the more marginal wheat environments in both the traditional and non-traditional wheat producing countries. However, I must caution that agricultural research alone cannot produce miraculous improvements in many of the more marginal production areas. Still, we can, and must attempt to develop improved technology to solve a number of the problems that face the marginal land areas.

Defense of gains -- Before describing various efforts to develop new technology, I should mention an important reality which confronts the research community and which requires the understanding of those who decide on research priorities and budgets. The pests and diseases that have attacked wheat for millenia continuously mutate to produce new races that can attack previously resistant varieties. This mutational ability is an evolutionary defense mechanism that ensures the long-run survival of these organisms. Thus, these crop pathogens and pests will be with us for posterity, and represent a constant threat to food production. Coping with this threat requires a substantial and continuous plant breeding effort to defend the gains in food production made in recent decades. This will always be an essential part of any breeding program and this kind of research is no less important than that aimed at raising genetic yield potential, and is every bit as deserving of research funds.

Improving Yield Potential and Closing the Yield Gap -- The theoretical maximum potential yield for wheat is estimated to be about 20 tonnes per hectare (about 300 bushels per acre). This theoretical maximum is based on growing the ideal variety under optimum conditions. The record yield so far obtained in a farmer's field was set in the early 1960s in the State of Washington at 14.5 tonnes per hectare, about 75% of the theoretical maximum. The average world yield is about two tonnes per hectare, which is only 10% of the theoretical maximum yield.

Whereas efforts must continue to increase the maximum yield potential under field conditions, one of the most promising ways to achieve increased production of wheat, particularly in the developing world, is to reduce the gap that exists between the maximum yield potential under field conditions and the average yield that is actually obtained.

Reasons for this yield gap constitute a familiar litany including problems of soil infertility, poor weed control, lack of fertilizer and other inputs.

Resolving the yield gap will require a number of approaches. Most importantly, perhaps, is the conducting of extensive on-farm research programs designed firstly to help researchers understand the existing farming systems and their inherent problems, secondly to allow the testing of alternative technologies and practices under farmers' conditions, and thirdly to promote the development of a mix of technological recommendations appropriate to the system in which they are to be applied.

Improving Yield Dependability -- Given the large gap between experimental and farm yields, more research attention should be given to overcoming the environmental and disease stress problems that still thwart the production efforts of most of the world's wheat farmers.

Drought Tolerance -- Inadequate moisture is one of the world's most pervasive wheat production problems. A concerted effort must be made to develop wheat varieties with greater tolerance to drought. The germplasm derived from crosses of spring and winter wheat which I will talk about later, is showing a very encouraging and significant increase to drought tolerance. Some of these new varieties are capable of yielding up to 3 tonnes per hectare under considerable drought stress whilst still retaining the capacity to yield up to 11 tonnes under optimal irrigated conditions.

Earlier Maturing Wheats -- Another important research effort involves the development of a broader range of earlier maturing wheat varieties. Such materials are needed where there is a short growing season available for wheat cultivation or where farmers seek to intensify their cropping systems, such as the rice/wheat rotations increasingly practiced in South Asia. This could be a very important development which will allow us to increase biomass production per unit of time.

Tolerance to Mineral Toxicities -- It is estimated that highly leached acidic soils characterized by toxic levels of soluble aluminum may cover as much as one billion hectares in tropical belts today. Currently, areas with acidic soils high in soluble aluminum are either undeveloped for agriculture, or, where cultivated, are generally unproductive. Through a cooperative program with Brazilian institutions, a number of high-yielding bread wheat lines have been developed with tolerance to the highest levels of free aluminum. These varieties yield up to twice as much as the currently available varieties.

Fuller Exploitation of Genetic Variability -- Today, most plant breeders focus their activities on making crosses between different strains of wheat within the same gene pool that is, cross a spring wheat with a spring wheat. An alternative approach which has been used for many years but still has a lot of potential is to utilize the variability of both the spring and winter wheat gene pools. CIMMYT's new Veery lines, derived from a cross of a Russian winter wheat Kavkaz, and a CIMMYT spring wheat, are now setting record yields in many parts of the world, and over a surprisingly wide range of environments.

For the last four years, a Veery line was the top performer across more than 40 locations worldwide (see table I, overleaf). It yielded 12% better than Pavon 76, one of CIMMYT's highest yielding spring wheat varieties. Veery even outyielded the best local check varieties at 70%

TABLE 1

**International Spring Wheat Yield Nursery,
1981-82**

(mean yield, 41 locations worldwide)

<hr/>		
Veery	Pavon 76**	Best Check
----- Kg/ha -----		
4982	4432	4582
<hr/>		

** CIMMYT spring wheat variety

individual locations, an indication of its very broad adaptation. Given the significant potential benefits of the spring x winter work for all wheat-producing countries, I believe more research effort in this area is definitely warranted.

Introduction of Alien Genes -- Another approach to increasing the yield potential of wheat is to transfer useful genes through wide crosses from related genera, such as wild grasses, to wheat. The focus of this kind of wide cross work is not the improvement of genetic yield potential per se, but rather more dependable and increased yields through better resistance to pests and diseases and greater tolerance to environmental extremes.

CIMMYT's first major involvement in wide crosses was with triticale, a program that was funded by Canada and headed by a distinguished Canadian scientist, Dr. Frank Zillinsky. Our continuing work on triticale is motivated by two major considerations. One is the observed capacity of triticale to perform better than wheat under a number of environmental stress conditions (see table 2 and figure 5 overleaf). The second major factor which may be of critical importance in increasing yield potential is the greater total dry matter production of triticale compared with wheat. A further partitioning of this biomass to grain could push triticale to a higher genetic yield potential than wheat.

Research to cross domesticated species of wheat with related wild species and grasses is another very promising research avenue. Generally, such wide crosses involve the breaking down of natural barriers between plant species in order to introduce useful genes from alien genera into domesticated crop species. A number of wild species have been identified with greater resistance to certain diseases, insects, tolerance to salinity, temperature, and moisture stresses. Successful introgression of these desirable genes can lead to new varieties with greater tolerance to environmental stresses.

The program to introduce alien genes is of long-term nature and the research is more basic than the principal thrust of many of today's applied research programs. However, it is noteworthy that many of the techniques developed in molecular and cellular biology are particularly suited for application in this type of program. For example, the sophisticated molecular probes that are being developed can be used to detect very easily the introduction of minute amounts of alien genetic material. Transforming DNA techniques can also be used to introduce alien traits.

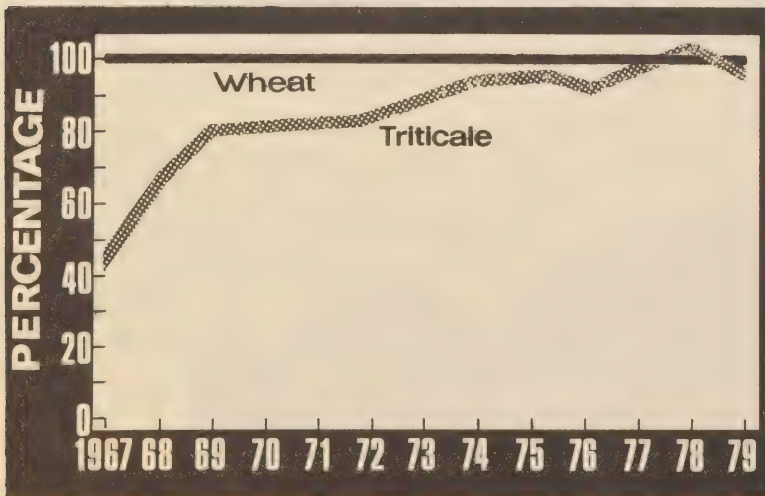
TABLE 2

Triticale Compared to Wheat
International Triticale Yield Trial, 1981-82

	Best Triticale ----- Kg/ha -----	Best Wheat
Kenya, Rift Valley	6233	5479
Mexico, Guanajuato	8499	4703
Chile, Chillan	5771	3354
Brazil, Brazilia	3737	881

FIGURE 5

Yield of the best CIMMYT triticales as a percentage of its best bread wheats



In some scientific circles today, there is great euphoria that major production benefits will soon be forthcoming from the use of genetic engineering techniques. The new techniques in tissue culture, cell fusion, and DNA transfer are being heralded as the scientific answers for the future.

Although great success has been made by employing genetic engineering techniques with lower organisms, it will take time to obtain similar results in crops such as wheat. Nevertheless, if science is to advance we must combine forces using new techniques to attempt to overcome the production barriers that currently exist. In predicting the impact of biotechnology on future wheat production we must be careful to refrain from over-optimism because not only could this lead to unnecessary disappointment and erosion of credibility, but more importantly to the discontinuation of work that in the long-term could lead to important breakthroughs. I am hopeful that if the biologist and the molecular scientist work together, in the future, we will be able to develop this improved technology.

Conclusions

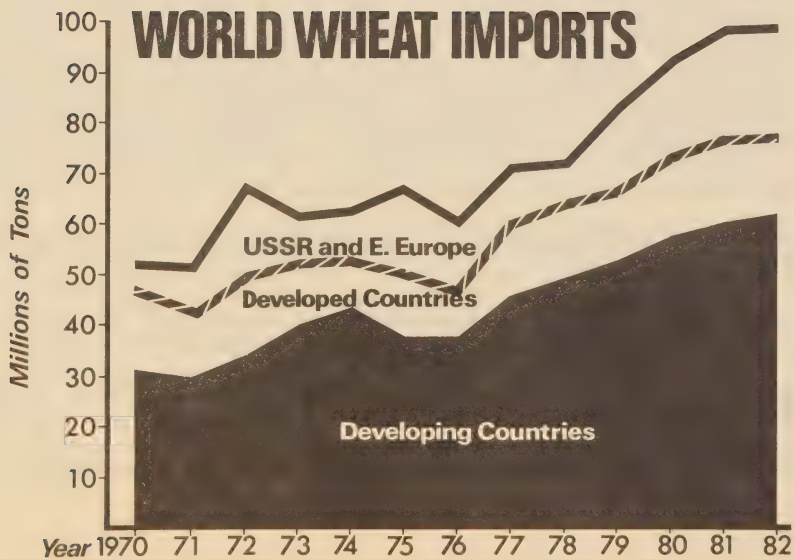
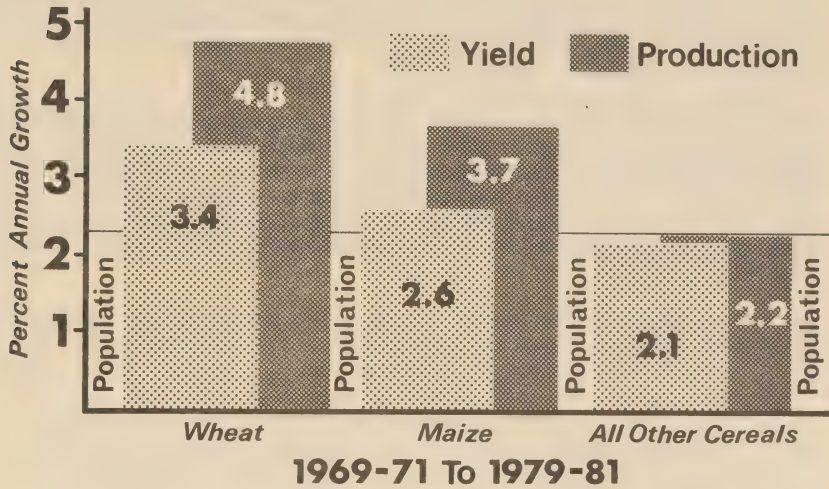
Socrates believed that "one mark of a statesman was the knowledge of how much wheat was required to feed the population of Athens." Socrates' statement is even more relevant today for the statesmen, politicians, policy makers, wheat producers and scientists here at this forum today. We have the much more complex and critical task of assessing the wheat requirements, not just of Athens, but of today's world with almost 5 billion people.

Clearly, great strides have been made in wheat production over the last few decades (see figure 6 overleaf). Much of this success, both in developed and in developing countries, is the direct result of investments in agricultural science which have resulted in the development of improved technologies. It is also clear that wheat demand has increased significantly, and that this demand is rising at a rapid rate in the Third World (see figure 7 overleaf).

While the developed wheat-exporting countries and the International Wheat Council must continue to play a vital role in meeting this growing demand, wheat production in the Third World must increase as quickly as possible to help stave off widespread hunger and social unrest. CIDA has long recognized this fact and is implementing research projects to increase wheat production in Kenya, Tanzania and Bangladesh. Food aid will continue to be essential but Minister Whelan, in his remarks this morning, stressed that in fact for the long-term solution, we must look for ways and means for the developing world to increase production.

FIGURE 6

GROWTH RATES OF CEREAL YIELDS AND PRODUCTION IN DEVELOPING COUNTRIES



Past successes give a clear indication of the potential contributions of agricultural research and technology. In the future, I believe that even larger investments will have to be made in agricultural research. In all likelihood, however, the rapid gains in production of the past two or three decades will give way to a more steady and incremental pace. Even so, the demands of a growing world population for increasing amounts of food make all possible advances in food production absolutely imperative.

Finally, despite the forbidding world food/population dilemma that we face today, I remain both convinced and hopeful - convinced that agricultural science can help us meet our future food production needs; hopeful that the large, long-term investments necessary for agricultural science to develop new technology will be made by those institutions and governments throughout the world who are aware of this absolute necessity. Thank you.

MR. MARCEL MASSE (Moderator): Thank you very much, Dr. James. We will have time for at the most two questions. The first one, Dr. James, is:

What are the constraints on the advance in technology?
Are they funds, people, time or some fundamental barrier that we will have to meet at some point? Can we go on increasing indefinitely the productivity of wheat and maize?

DR. CLIVE JAMES (Deputy Director General, CIMMYT): I think that we can probably use more funds in agricultural research for increasing wheat production at the national level and at the international level. At the international level, we are spending (In CIMMYT these funds come from approximately 30 donors, institutions, governments around the world) ten million dollars on the most important crop in the world. If you look at international investment in agricultural research in the developing countries, it represents approximately 0.5% of GDP in terms of agricultural production. In the developed world, we are spending approximately 2% of agricultural GDP. I believe that the return on investment in agricultural research is one of the greatest opportunities that we can take advantage of in the next few decades.

MR. MARCEL MASSE (Moderator): The next question has to do with human factors and it is:

What is the role of human factors in limiting the speed with which new technological change can be implemented?

DR. CLIVE JAMES (Deputy Director General, CIMMYT): Let me remark on human resources in a different aspect before I come back to that. I believe that of all the resources on Mother Earth, it is people that have been, are, and always will be, the most important resource. I

think that not only do you need new technology but you need trained people who know how to use that technology in an effective way. As far as the developing world is concerned, it is alarming to us to see that in fact there is not enough funding at the moment to provide people from Asia, Africa and Latin America with opportunities of doing post-graduate work, which is appropriate to the problems they face in their national programs.

I believe that the ultimate goal of multilateral agencies, bilateral agencies and certainly institutes like CIMMYT, should be to build national capability, not for self-sufficiency, but to get to a point which is closer to self-reliance. The human factor is certainly a very important one, and I think most agencies have recognized this by spending a considerable amount in terms of training programs. But I believe that even larger investments in this area would be a very good investment.

MR. MARCEL MASSÉ (Moderator): Thank you very much, Dr. James. We now go to the second panelist, Dr. Graham Donaldson, who will talk about international financing. Dr. Donaldson is currently the Chief Economist of the Economic and Policy Division of the Agriculture and Rural Development Department of the World Bank in Washington. I am glad to recognize here a colleague in an institution where I spent some very important years at the beginning of my working life a few years ago. Dr. Donaldson is responsible for policy formulation with regard to the bank's lending for food production in rural development, and for the provision of guidelines for bank activities in agriculture and rural development. Prior to joining the World Bank in 1970, Dr. Donaldson worked for the new South Wales Department of Agriculture and Wye College of the University of London between 1965 and 1970. He has written widely on aspects of agricultural management and policy, and especially on the management and impact of technological change in agriculture. Dr. Donaldson holds a BSc and diploma in agricultural economics from the University of Sydney and a PhD from the University of London. Dr. Donaldson's presentation will focus on the adjustments that have transformed the international economy and he will analyse these trends, especially in the financial area, and their relationship to the grain trade, particularly as they affect developing countries. Dr. Donaldson.

DR. GRAHAM DONALDSON (Senior Agricultural Economist, Dept. of Agriculture and Rural Development, World Bank, Washington): Mr. Chairman, ladies and gentlemen, it is a great honour to be here. I would like to thank the Chairman very much for your introduction. However, I think I could say that in the context of the very excellent presentations that we have just seen or been through, that my task this morning is to move the conversation from the sublime to the ridiculous.

The reason we are here is that we have a common interest in respect of the grain trade, for that is what the International Wheat Council is about. I think that we will all accept that all national food systems are ultimately global in nature, that no matter whether it is a small surplus generated occasionally or a large deficit that is generated over the long term, continuously or occasionally, we are ultimately through all of our individual national marketing systems dependent on a global market.

The global grain trade has evolved very rapidly in the last two decades. These changes are an integral part of the adjustments that have transformed the international economy. I want to say a few words about some of these particular changes, four in particular.

First, the growth in world trade itself; secondly, the emergence of a global capital market; thirdly, the shifts in the exchange rate regime; and fourthly, some of the changes in the commodity trade.

Now all these things combined have changed the policy environment within which the global food system must work. First, the growth of trade. Trade has provided the economic engine for GNP growth since World War II. It has long been understood that a prerequisite of growth is demand, and for all countries, developing countries in particular, a supplementary demand can only be found by trading. The consequences of a collapse in global trade, such as that which characterized the 1930s, is well known. Indeed the International Wheat Council to a large extent grew out of the disarray that accompanied this collapse some 50 years ago. This experience also led to the creation of various other international trade and finance organizations, including the GATT, the International Monetary Fund, or the IMF as we call it, and the World Bank, as instruments through which a global trading system was to be fostered. These essentially were the instruments of Pax-Americana. I think that though we may see them each in a different light according to our point of view, as the instruments of Pax-Americana, they have been surprisingly effective. Partly as a result - and we are not sure not to claim too much - the volume of trade has expanded enormously and the world has become increasingly well integrated through that trade. Growth in trade has exceeded GNP growth in all but three years since 1945, and two of those three years were in the last three years. This is nowhere more evident than in the grain trade, which has more than doubled in the seventies from 120 million metric tonnes in 1970 to about 260 million metric tonnes in 1980-81. At the same time, as Dr. James pointed out, while global production of grain has doubled or increased twofold from about 1950 to

1980, trade in grains has increased more than tenfold. The transition is quite spectacular.

A major consequence of this trend is that virtually all economies, planned and market economies alike, have been increasingly open to trade. As an example, the U.S. has increased its openness in terms of the share of demand derived from trade, from 13% in 1970 to 27% in 1979, and in fact, it has more than tripled if you go back to 1965. Now an inevitable consequence for any country of a more open economy is that a larger share of its economic activities are beyond the reach of domestic economic policies. This is a point of major concern, a frustration for policy makers which has implications for all of us.

A second important development since World War II has been the emergence of a global capital market. International capital markets were virtually unthought of and largely unknown in the immediate post-war period. Most capital transfers between nations were on a government-to-government basis, and this continued right through the 1940s, particularly with the Marshall plan. In the 1950s, the role of the private sector in investing in other countries, the formation of multinational corporations or the resurrection of many multinational corporations, became an increasingly important part of this. This was overtaken in the mid-1960s by the emergence of the Eurodollar market which grew at a very rapid rate. The volume of credit that is available from this market is now vast. It is estimated to be \$1.7 trillion, that is \$1.7 thousand thousand million. This market is used by all trading countries, developed and developing alike. This is done through a loan through individual banks or from consortia of banks who draw on these funds.

Developing countries borrowing from these banks in the 1970s grew at a rate of 40% a year, from about \$4 billion in 1970 to \$136 billion in 1980. Even at \$136 billion, only a small part of the total \$1.7 trillion is floating around in there. Those countries most dependent on aid funds, however, increased their commercial borrowing at only half this rate, from about \$260 million in 1970 to about \$2.8 billion in 1980, a small part of the total.

The important thing about this market is that it links national economies in the world in ways that are just as important as the linkage through trade, so really it links the economic policies in the nations of the world. Moreover, this market is almost wholly outside the direct government control of any one or group of countries, or the control of any international agencies, such as the IMF. When you hear people calling for a new Bretton Woods Conference, this is perhaps for some of them at least, what they are referring to.

The benefits from foreign borrowing for a country are very numerous. It supplements investment, it smooths cycles in national income, it can even ease adjustment to income loss or permanent income loss. Fourthly, of course, it meets the transaction needs of trade. At times of restrictive monetary policies by larger economies, these borrowings become expensive or even impossible to arrange. In these circumstances, there is reason for concern that these mainly short-term flows needed to finance the trade may be impaired to the advantage of market trading nations.

First of all, in practice this has not really occurred and the credit for grain trade transactions in particular seems to be plentiful. It is also in this respect that the Compensatory Finance Facility of the IMF is of some importance. The availability of drawing rights under the CFF ensures that unexpectedly high outlays related to trade, including trade in grains, can be covered by short-term borrowings. This, together with the guarantees of the Food Aid Convention, provides a safety net which helps ensure access to food supplies for those countries who choose to rely partly on trade for their food security.

A third major change has been shifts in the exchange rate regime. Beginning with the Bretton Woods Convention in 1944, it was agreed that the International Monetary System would operate with, among other things, a fixed exchange rate system. Once agreed to, these rates were to be changed only in very special circumstances. Imbalances in policies or external accounts, in terms of deficits and surpluses, were to be corrected by changes in domestic policies, either by tighter fiscal policies or by stimulating the economy, as the case may be. This was adopted in the thirties to avoid the beggar-thy-neighbour competitive devaluation which characterized that period.

For a variety of reasons, however, in the early 1970s, the U.S. devalued in 1971 and again in 1973 and then unilaterally closed its gold window with relatively little discussion around the world. It forced the world onto a floating exchange rate system, which prevails to this day. The system now operates as a system of bloc floating. A large number of countries keep the value of their currencies pegged to the dollar, franc or pound or to some basket of currencies, and the value of their currency floats with changes in the value of the chosen currency or currencies. There is thus some fixity in the system but there is also a great deal of flexibility. Recent estimates suggest that 85 percent of all world trade takes place across flexible exchange rates.

The importance of this shift to a flexible exchange rate system is that it creates a significant change in the working of the international economy, especially in relation to the emergence of well-integrated international capital market, to which it is closely related. It changed in a substantial way the manner in which changes in monetary policies affect an economy, and suddenly makes each country much less autonomous. The full significance of these changes is perhaps not fully recognized.

This might be illustrated a little further by considering the consequences of a policy change in the major trading countries such as the U.S. Suppose the U.S. decides to follow a tight monetary policy, a policy of deflation. Prior to 1973, this would have caused higher interest rates within the economy which would have constrained both consumption and investment borrowing. In the post 1973 situation, however, as these interest rates begin to rise, capital flows into the country or flows out at a slower rate, as the case might be, and this in turn causes an increase in the value of the dollar. This causes their exports to be less competitive and chokes off the export sectors. For exporters, such a change in domestic monetary policy forces the burden of adjustment onto a fairly narrow part of the economy, those involved in exports. Where agriculture is a specific part of the export sector, it has to bear an important part of the adjustment. This change has been of very great significance for U.S. agriculture.

It is also in this context that the grain trade must be considered. Countries involved in the trade are faced with increased risk. Those depending on the imports of commodities from the U.S., first of all are faced with higher prices, but because their own exchange rate can change and the interest rates can also change in response to changes to policies of individual countries, then each country faces increased trading risks.

Nevertheless, the fourth thing that has transformed our global situation has been in fact changes in the market. In a real sense, any discussion of grain, particularly in a food security context, starts in 1972-74. What transpired then was what is called the world food crisis. In fact, despite that crisis and subsequent to it, there have been enormous adjustments and trade has increased at an unprecedented rate. The developing countries in particular have made increased use of expanding global markets for grain imports, and this has been both to make up for poor local harvests and to dispose of surpluses. However, reliance on international food markets, as a means of stabilizing domestic supplies has seemed quite paradoxical, at least for many governments, since these markets are so widely perceived as being unstable. Yet, even in 1973, when export supplies were tight and prices were high, developing countries who needed supplies were able to import as much grain as they could handle and distribute. In other words its availability was not limited. In retrospect, the world food

crisis was much more a monetary economic phenomenon than a physical supplies problem. The global grain trade adjusted quickly to the changed situation and has continued to expand and to change quite markedly in very interesting ways.

The most important one is in terms of stockholding and reserves. The changes in the international markets since 1974 have provided a very substantial and effective reserve from which importers may draw. This reserve has three parts. First are the aggregate trade flows: these have doubled in volume from some 120 million tonnes in 1970-71 to over 260 million tonnes in 1980-81. Second, there is non-governmental stock, which currently average around 80 million tonnes, almost a third of what is traded, which backstop trade and are available for delivery within thirty to ninety days.

The third and the most important element in the world's total "buffer stock" is the grain being fed to livestock, which has in the past been diverted to make up for production shortfalls. In the last three years, an average of about 260 million metric tonnes (including soybeans) were fed to livestock. This is equal to over 60% of the annual human grain consumption and includes large amounts of wheat (about 80 million tonnes) and soybeans (about 85 million tonnes), which are important sources of direct human nutrition.

The feed grain buffer has been tested over the past decade and has provided an effective and surprisingly timely response to production shortfalls. For example, when grain prices rose during 1972-74, the feed consumption adjustment mechanism proved extremely robust and the drop in the U.S. feed consumption in that period was as large as the total global production shortfall (about 30 million tonnes in fact). A similar adjustment occurred in 1975-76 when the global grain production shortfall was far larger than that in 1973-74, (about 65 million metric tonnes as opposed to 30 million metric tonnes). If you look at the figures, the grain prices during that period remained remarkably stable. The experience of 1982-83 provides another example of this buffer functioning in similar ways.

There have also been other important changes in terms of the geographic distribution, supplies, and in competition in trade. There have been important changes in terms of better information and integration of global markets through improved telecommunications and information gathering, and we could go on to talk more about the changes in the mode of trade, the emergence of basis trading, and of the growth in future markets. What has happened is that these adjustments have permitted trade to grow and to provide wide access to supplies despite unfavourable monetary conditions.

In conclusion, it is my judgment that many of these conditions will prove to be short-lived. Meanwhile, it is difficult if not impossible, to operate many commodity programs, buffer stocks, and stabilization schemes. Indeed even a new international wheat agreement might be very difficult to achieve in the circumstances of monetary instability that prevail at this time. So long as this situation persists, the drives for self-sufficiency in the developing countries and the developed countries alike will continue to be encouraged. The recognition that a highly integrated global economy exists immediately suggests a new policy framework or agenda, to adopt policies at the national level that will avoid dumping the domestic internal instability into the global arena. If the global food system is more precarious today, it is largely due to this broader instability rather than to the instability in either production or trade, both of which have held up remarkably well. Thank you.

MR. MARCEL MASSÉ (Moderator): Thank you, Dr. Donaldson. Now, on this question of financing, I guess the main question that will be in everybody's head is:

What is the link between the debt of developing countries, the effect on the ability of the international system to continue to function with these kinds of pressures, the financing of trade in general, and the financing of the grain trade? Is there an important connection?

DR. GRAHAM DONALDSON: First of all, as I indicated by the numbers that I have presented, the total debt of the developing countries as a whole relative to the global debt is really relatively small.

The second point that is important is that the number of countries amongst the developing countries that are seriously in debt is also very small. We are talking about some ten countries at the most. The membership of the World Bank, my organization, is about 144 member countries. The situation for all of those countries is not nearly as dire as it might seem, and in many cases we are seeing as example of really the point that I was trying to build, to present without stating, and that is the general proposition that we have achieved a very high level of global economic integration, so much so that whatever any country does in the world has implications for almost everyone else.

But we have not achieved the same level of political integration, and what we are seeing and the noise that is in the press about the debt of these countries and how it might be accommodated and so forth is really a reflection of the lack to which we are politically integrated and our institutions are able to cope. I am not advocating an increase in the number of international organizations, far from it. But I do think

that the current institutions, including my own and others represented here, have an enormous challenge before them to work towards a better integration so that our conversations can be much more straightforward. Frankly, I do not see that there is a real risk of a major default by one of the major countries and if it occurred, I do not think it would be catastrophic.

More specifically, to answer the part of the question on what would be the implications for the financing of trade, the indications are that in fact even when countries are in considerable debt, the major trading corporations and major banks that work with those corporations have been able to find funds and are prepared to make funds available even though they know that they may get that money back only eventually and not as soon as they might wish.

The other thing is that in the kind of environment that we are working in, where the dollar is very highly valued relative to other currencies, the U.S. has been very aggressive in providing credit for trade, and through the CCC and through the Ex-Im Bank, there are very substantial amounts being made available to any country that needs them to import grain. As an Australian, that helps me enormously.

MR. MARCEL MASSÉ (Moderator): The second question is regional and it affects Africa. You mentioned the difficulties in Africa. The question is:

Given the general development problems of the African continent, is it likely that they will be able to pay for the food that they need over the next two decades?

DR. GRAHAM DONALDSON: Yes, that is a very good question. I regret that I did not bring some specific numbers with me because it is very striking the extent to which Africa is not a high-debtor region or does not have high-debtor countries, with the possible exception of Nigeria and even that is short-lived. Secondly, it is striking in the extent to which its imports of food are a very small part of its total import bill.

It is also important to recognize that the less developed a country is, the more likely it is to be an agricultural exporter. The case for Africa is that in every country, they run a positive balance of payments on their agriculture account. In other words, they export more agricultural commodities than in fact they pay for imports of agricultural commodities. It is hardly surprising given that most of their exports are probably agricultural commodities and there is no great comfort in that.

However, relative to the amounts that they spend on energy, I believe the figure is that their expenditure on food is something in the order of 5 to 8% of the amounts that they spend for energy imports. This is not a major problem, as I see it. I think that we are seeing some interesting phenomena in Africa which relate not so much to a decline in absolute production but to very significant changes within consumption patterns and consumption preferences as the African population becomes urbanized. As this has happened and food aid has gone in, there has been a tendency for the urban population to prefer wheat and rice or bread and rice, and these have not generally been produced in large amounts in African countries. The signals, the price signals, incentives for farmers to be responsive and to start and produce these kinds of commodities, other than more traditional crops, have not been very strong due to interventions in the price policy regimes within their countries.

I think that within a very short time, we could see a very significant turn-around in what is apparently a declining in a very tight situation. This does not mean that there will be full equity. The distribution problem in terms of income distribution is still very serious in many parts of the world, Africa included.

MR. MARCEL MASSÉ (Moderator): Thank you very much, Dr. Donaldson. Now we go to our third and final panelist to hear about trends in markets and merchandising. Our panelist is Mr. Laserson. Mr. Laserson is Executive Vice-President and General Manager of the World Grain Division of Continental Grain Company. Prior to appointment to that position, he was senior Vice-President, Merchandising, of the World Grain Division, senior Vice-President of the North American Grain Division with merchandising responsibility for all grains and soybeans, and a division Vice-President and Commodity Manager, Coarse Grains and Soybeans. Earlier, Mr. Laserson had served in senior merchandising and management positions at various American and European offices, and as Vice-President, managed two regions of Continental's North American Grain Division. He joined Continental Grain in 1954. Mr. Laserson is active in a number of trade organizations, including the North American Export Grain Association, where he is Past President and now Director. He serves as a panelist in the American Arbitration Association. He is a graduate of Harvard College with an AB degree. Mr. Laserson's remarks will focus on recent trends in grain marketing, including the current situation in the international grain trade, and he will talk about what action may be taken by governments, private companies and trade groups to improve market conditions. Mr. Laserson.

MR. MYRON LASERSON (Executive Vice-President, Continental Grain Company, New York): Thank you, Mr. Chairman. So that no one is confused, what I will not talk about today is whether the markets are going to go up or go down. Someone told me last night they will probably do both.

I also want to comment that one thing I have learned during these discussions this morning is the difference between an economist and a grain trader. Perhaps it can be said that a grain trader cannot see the forest for the trees. After these discussions this morning, I am more convinced of that. But a grain trader is also concerned with the here and now, with the situation as it exists.

The interesting comments I have heard about the ability of the world to produce enough grain are no doubt quite true. But I am reminded by the fact that last year the United States lost 25 million tons of its corn surplus. We are in a very critical growing season starting right now. If we do not have good growing weather in the next 30 days, the situation right at this moment is going to be extremely critical for the United States and I think for world trade. While we may have enough grain over time, the amount of grain we need for this coming year may not be such a surplus as we may think.

When I was asked to join this distinguished group, including not only the speakers present, but equally important, the audience, I experienced a strong sensation of having been presented a special opportunity. It is not often enough that forums are provided for the International Grain Trade to meet together. I want to add my congratulations to the organizers of this symposium.

Recent trends in grain marketing are, unfortunately, too easy to categorize. The general trend is market stagnation. International trade has stopped growing. I know Mr. Donaldson has said it has grown much over the last ten years, but he also said that in the last two years, it has gone down. We are concerned with this in particular. Protectionist policy is on the rise. Investment in agriculture in many of the producing countries, certainly in the United States, has slowed considerably. The strong dollar and high interest rates have prevented stock building and perhaps even reduced usage of grains. Developing countries, and again I differ with Mr. Donaldson on this point, have approached near bankruptcy, and grain exporters have, from time to time, implemented steps leading towards a price war.

The prospect of speaking about trends in grain marketing, then, is gloomy indeed. Because a trend, by its very definition, is a tendency that is continuous and consistent. Yet, those of us who have been in this business have good reason to doubt that what we are experiencing now will be continuous.

We have seen too many cycles and sudden changes to accept consistency as an appropriate term for our industry. That we are in a difficult period is self-evident. Most of us today can agree as to what is going wrong. We have made tremendous progress in agreeing to the reasons for trade going awry. High interest rates, high prices, political interference in marketing, trade barriers, we know all about

these. Or we know enough to have strong opinions. Surprisingly, we have come remarkably close to agreement on what are the problems. Normally, identification of the problem is a major step toward a solution to those problems. Solutions must be found.

Our world is too fragile to allow the normal inevitable cycle of large food deficits to return once more and catch us unprepared. Imagine how well we will manage under-supply in the future (even if it's for a year) with the background of how badly we have managed over-supply in the past. It seems to me that we should condition ourselves to work together. Our goal should be removal of barriers, not self-interest ... although certainly these are not mutually contradictory. Today's decisions in part will set tomorrow's trends.

I should point out that some areas of concern are receiving significant attention:

First, the trend toward even higher price supports in the United States will be modified with the 1985 farm bill. A modest step in this direction was taken when Congress passed an amendment this year to the 1981 Farm Act. Producer groups and Congress today realize that when domestic prices are supported at artificially high levels, the international marketplace may be at an artificially low level, as exporting countries find ways to subsidize excess supplies. The European Community seems on the verge of understanding that its price support system has become far too expensive for its comfort. This battle may not be over, but the outcome is predictable. The trend is in a new direction. The U.S. will soon again be sending proper signals to the market. History tells us that when that happens, the other producing countries will follow suit.

Second, the issue of contract sanctity and supplier dependability has been a painful, but perhaps useful experience. The use of food embargoes, at least 4 times by the United States in the last decade, reached its extreme in 1980. The negative reaction to this event by all but a few political or academic theorists has been universal and educational. Food embargoes should not threaten the planning of international trade. The Congress of the United States has eloquently stated our resolve on this issue.

Third, through bodies such as the Food Aid Convention, the producing countries have accepted a concept for themselves of the obligation to provide food for the hungry of the world. The leaders of the West - including President Reagan and Pope John Paul II - are fully supportive of food aid as a critical element for peaceful development in the third world. Growth of this trend will be helpful to all of us as we watch interchanges within the international grain trade.

The three areas of concern I have just mentioned are indeed important as we look at the future, both intermediate and long-term. My argument that we have come close to solutions only suggests that few differ on the necessity to take the proper steps. But my greater concern is that even after resolving these issues, we still will have an industry that lacks a fundamental basis for growth. In fact, resolution of those three issues will remove obstacles and will create opportunities. But, by themselves, useful and vital as they may be, they do not constitute a dynamic force that builds markets.

The fundamental basis for growth and ultimately the well being of the world we live in is open and reciprocal trade. It is in this area that governments around the world have much work to do. They must be convinced that additional steps are necessary to remove barriers, to eliminate quotas and to assist industry in the developing countries.

Charity and aid programs are useful up to a point. They can never be a major feature of international trade without creating resentment on the part of the giver and the receiver alike.

Credit programs, without a systematic plan and analysis, are at best subsidies and at worst create future obligations and problems that may eventually suffocate international relations.

Open and reciprocal trade, by definition, means elimination of barriers and quotas. It also means creating a marketplace for the benefit of countries which need to earn foreign exchange. In the case of developing countries, it means assistance to industries in order to encourage growth and build infrastructures. It means to separate issues of commerce from issues of politics. Because if we can find our way in the world of commerce, then we need not be so confused by the world of politics.

A major impediment to the development of trade has been the lack of foreign exchange available to make growth possible. Debt and inflation rise hand in hand in the developing countries. If there are no funds for investment, then there are no means available to improve living conditions. Without investment and without growth, there can only be stagnation - a breeding ground for resentment and political disturbance. Debt and inflation are problems not restricted to the developing countries. We all suffer from the effects of these corrosive elements.

Most economists associate the high debt of the United States with high interest rates, which in turn has established a high dollar in terms of world currencies. It is sobering to reflect on what happens when the world comes to understand that the dollar itself has limited potential as debt increases and balance of trade for this country worsens.

It is time to attempt a program that moves us out of this period of stagnation. Such a program must go far beyond the obvious reduction of tariffs and quota requirements. It must move further than aid as an expression of decency and charity. It must overcome the stigma of subsidy and price wars. And it must establish a priority for investments that improve living standards globally now and provide expanded markets for goods and services in the future. History has given us some examples of how we might develop such a program. Japan's economic recovery after the end of the war was due largely to the dedication and ingenuity of the Japanese people. But the recovery was perhaps faster and more convincing due to massive international assistance programs and the freedom to export its manufactured goods to the West.

Europe's economic recovery came only after the determination to create a meaningful alliance, together with a systematic program to utilize investment funds generated by the Marshall Plan.

The United States Food for Peace program distributed food to starving people when it was badly needed. More important, it created funds and expertise in many places, bringing stability and a measure of self-sufficiency that replaced rioting and rationing.

Are we in the international grain trade, governments, private companies, trade groups, ready to awaken from the trance of senseless price battles and perhaps take some steps to an approach that by the year 2000 could be a reality, not a dream?

It seems we are in desperate need for an approach to the future that encompasses not only the apparent altruism of these previous programs, but in addition, an approach that has the vision to establish lasting objectives.

I submit to you that investment in the infrastructure of developing countries will pay dividends in the future. These dividends will be at least as great as we have experienced from the investment of previous assistance to Japan and Europe and the starving population centers of the world. In the form of growing markets, the dividends will enrich the investor while at the same time begin a meaningful trend of hope. These investments should be designed to improve the living conditions for the recipients. But more important, they should allow the recipients to build industry, to prosper and to export.

We should think of a world that might have a choice of intelligent consumption of sophisticated conveniences and a world that enjoys the freedom to pay for that choice ... not with debt and resentment and political subservience, but with goods and services that can be exchanged in a totally free environment.

I have been told that even to think about such a program is naive. This is particularly the case when the use of grain is mentioned as a means for investment. After all, anything that sounds like economic assistance becomes an item for the Congress of whatever government to manage. With the involvement of government come the special interest groups, shipping industries, union leaders, protectionists, political conservatives and others.

The labels and the characteristics of those who would argue against the possibility of such a program are familiar in every country of the world. Their negativism, which at times sounds like good common sense, is generally without any hope and without imagination. We should know by now that the amount of pure aid available for developing countries will never be adequate. We should know that the solution to debt problems cannot be burdensome credit. We should know that new real demands in international trade of grain can arrive only after there is means for buyers to pay.

A program that we might dare to think about could be developed with the following features:

1. Countries in need of funds for infrastructure and industry to be candidates to receive grain shipments in the form of outright grants.
2. The grants to be made only after recipient countries have completed their normal commercial purchases.
3. The grants not to be subsidies to promote short-term exports from one producer or another. Rather the grants to be shared investments on the part of all producing countries.
4. The program to be spaced over several years so as to allow long-term planning.
5. The local currency thereby made available as a result of the grants to be utilized for specific investment projects.
6. The grants to be totally free from attachment to peripheral industries or political pressures in the grantor countries.

The exporting countries have, in the past, joined together to attempt to control distribution and price ranges. How much more meaningful it would be if those exporters could join hands in an investment strategy that offered future rewards for all.

As the investments in the developing countries succeed, and even before so as to establish the trend at the earliest moment, tariffs and quotas need to be reformed. Such reforms will allow maximum exports from those countries, which will ultimately increase their grain imports as they gain new purchasing power.

Ladies and gentlemen, the trend for grain markets will be established not only by the normal vagaries of weather and population growth and new technology. They will become established partly by the speed with which we come to solutions of recognized problems. They will be established when we use our collective abilities and imaginations not to develop new ways to contest each other's right to survive, but rather to develop each other's natural and fundamental instinct to prosper. Thank you very much.

MR. MARCEL MASSÉ (Moderator): Thank you very much, Mr. Laserson. There is one question, one difficult question I guess, that comes to mind after listening to what I thought was a very good statement of the present problems. It is the political environment.

If we were to agree with your proposals, what is the chance that in the present world, where there are not in North America but much more in Europe - stagnating economies, very high unemployment rates, very strong movements towards protecting local jobs, what is the possibility that your proposals could be accepted over the next few years, both in the U.S. and by the other governments?

MR. MYRON LASERSON (New York): Your question is indeed a difficult one because the answer is to judge the political courage on the part of the leaders of these countries that you ask about. I will concede that perhaps what I was talking about is somewhat utopian, but at the same time, I believe it is the only realistic way we are going to solve the problems that exist between countries. The political leaders eventually, I think, will see this. It takes time and I am reminded by the fact that if one asked the Congress of the United States before General Marshall's time to conceive of the Marshall Plan, it would have been just as difficult at that time to think that this would happen. I submit that the assistance to Japan at the end of World War II would have been very difficult for people to think about. So what we are talking about is imagination and courage and some hope.

MR. MARCEL MASSÉ (Moderator): Thank you, Mr. Laserson. I guess the second question would be:

Given the difference in actual purchasing power and productivity of the various economies, how would you put so much of the trade on a purely commercial basis? I mean, you cannot advocate that the aid flows would be considerably reduced in present circumstances. I do not think that this is really what you advocate. You were talking about an interim period.

MR. MYRON LASERSON (New York): No, very clearly, I do not think that the present aid programs need be stopped at all; in fact they can probably be expanded on an as-needed basis. What I am thinking about is something that is entirely different and new and "inédit". Let me perhaps, at the risk of involving the delegation from the People's Republic of China that is here, let me talk about, as an example, what might exist in the case of China.

This is a country that has the logistical capacity to import 15 million tons of grain a year, and that is all at the present moment. In order for that country to increase its imports of grain, for which there is still some need - how much perhaps is debatable but certainly some need - there has to be investment in the infrastructure in the highway systems, in the whole transportation system. The question is, who is going to make that investment? Will the Chinese government make that investment? Will they be motivated to make that investment, or can the exporting countries that have surplus capacity and surplus grain help make that investment? I submit that if we could free local currency, if we could free some of the Chinese investment from other things in order to build the infrastructure, we would be increasing the market substantially above what we see today.

Mr. MARCEL MASSÉ (Moderator): Thank you, and thank you very much to the participants. All that is left to do is - in the words of the program - to have the moderator's summary. I have had my colleagues here prepare a summary of what each of the participants have said, and I have been trying to get from the summary what are the general themes that I could remember from this morning.

SESSION I - SUMMARY

- Our first theme is one of optimism, and it is one that it is quite rare to get from most speakers when we talk about the next five, ten, fifteen years. I know that Mr. Laserson said that international trade is stagnant today and certainly the economic conditions of most of Europe and of the Third World and the international financing framework at present are not what we could call optimistic. However, we were told about the present production of grains, the changes in technology that are happening and the potential for increasing production over the next few years. Similarly, at least two of the speakers mentioned the statistics on population growth and the fact that this is a problem that seemed almost unsolvable just a few years ago, and now seems much more solvable. When we looked at the population/food equation, we were told by Dr. Martel, I believe, that that equation is more optimistic now than it has ever been considered in the last ten or fifteen years. When we look at all these arguments by the various speakers, I think we have to come to the conclusion that a number of the problems that we have, at least have a possible solution and that the population/food equation, which created so many concerns before, can be solved.
- However, certainly a number of the other speakers indicated that if the problems are to be solved, there are changes that are needed in a very pragmatic way and that these changes, in terms of either policy or productivity, will be difficult to bring about. We traced a program for ourselves for the next few years in terms of the policies that can be changed, both in the grain trade and in the overall environment, that would permit these problems to be solved.
- In terms of the grain trade, I have been reminded and I remember from this morning, most acutely, the exhortation that was made for much freer trade, for trying to decrease the problems caused by price wars, the problems created by political interference in the fixing of prices in developing country markets, for instance.
- As we were also given to understand the longer-term environment, the thing that struck me this morning in the various presentations was the fact that the reforms that have to be done at present in terms of freer trade and in terms of pricing policies, have got to be accompanied by reforms in the wider environment. The wider environment being the human factors; the quality of education in order to increase the productivity

of farmers; the overall policies including the policies that affect the environment; the human and social policies that have to do with the creation of jobs, with the creation of new types of jobs, with investment and with the increased investment that we have to make in technology; and that all these overall policies also have to be made to fit with the changes in the actual concrete policies that affect the grain trade.

- The main lesson I would draw from the various presentations this morning is that while we work for changes in trade policies, in grain policies, in increased technology in order to increase production of grains, we have to be aware that these will succeed only if the overall policies leading to freer trade in general, increased productivity, better international financing structures, greater care of the environment and the policies that affect grain itself are all improved.
- As a last point, I felt that the old dilemma between trade and aid was also touched in a very effective way. In other words, what I understood was not that trade, either between developed countries or between the developed and developing countries, was the way to solve our problem. What I understood was that aid, whether food aid or general aid, should be considered much more as an interim measure; that aid, including food aid, is something that is necessary and may be necessary in emergencies, may be necessary for a long time to come but should be treated as an investment or as a source of investment; and that eventually, once we have been able to increase the productivity of the various participants in international trade, so that they are productive enough and markets are free enough so that they can pay for imports by increasing their exports - once we have reached that position, then aid becomes a very exceptional measure.
- This is a view of the dilemma between trade and aid that I think makes a lot of sense. It is a view that of course justifies the investment in technology, justifies the work that you are doing to make trade policy and grain trade policy more relevant and more efficient, and it is also a way of looking at trade and aid that fits the overall problem that we have to create better policies, in terms of financial policies, international trade policies, and international financing policies and North-South policies. It is the only way in which you can reconcile the need for these overall policies with the need for increased investment in better technology and the hope of a more efficient, more developed and greater trade in grains.

- My last duty, and it is a very pleasurable one, is to thank for you all the participants this morning who opened up the symposium and gave us what I thought was an excellent view of both the actual, practical problems that have to be looked at, and of the total environment in which they fit. Thank you very much.

Afternoon Session - Thursday June 28, 1984

MR. WILLIAM MINER (Conference Chairman): We will begin the afternoon program. I would like to take this opportunity to make one or two comments on the program before turning it over to your moderator. As the updated program indicates, in order to broaden the regional representation of the panel that deals more specifically with grain, we have asked Sir Leslie Price of Australia and Mr. Bello Sule of Nigeria to join us. I might say, being given this opportunity, that Sir Leslie, in particular, is well-known in these circles and also in relation to the work of the International Wheat Council. We are delighted that he is here and is able to join us. We have as a "rapporteur" Dr. Petersen from the University of Alberta and he is assisting Hans Hermens who is the deputy co-ordinator of this program. Hans is from CIDA, and they in turn will be assisting the moderator in the summary portion of the program.

Your moderator this afternoon on the general session theme of World Grain Trade Beyond 2000 is Mr. John Parotte. He is the Executive Secretary of the International Wheat Council and really does not need further introduction from me. We are, however, delighted that he is here and is able to assume these responsibilities this afternoon. Apart from the Council itself or its Secretariat having undertaken a rather broad survey of world grain trade looking forward and published it, he has tremendous knowledge and experience in relation to this subject. So, I call on Mr. Parotte then to take over the afternoon program.

SESSION II - THEME: WORLD GRAIN TRADE BEYOND 2000

MR. JOHN PAROTTE (Executive Secretary, IWC) (Moderator): Thank you, Mr. Chairman, for that very kind introduction. The second session is going to examine world grain trade beyond 2000, a challenge indeed. We have heard this morning that the future was full of challenges, and it is intended to provide the framework for discussing the future for grain from the perspective of producers, importers, exporters, processors, handlers and shippers.

We had an excellent session this morning and I do hope that we, (member panelists and Mr. Theme Speaker), can live up to this high standard that as set by the session earlier today.

We propose to run it in a slightly different way from what it was this morning, in the sense that we are going to hear the theme speaker first, Dr. Gale Johnson, then we will have a question and answer session, and thereafter we are going to hear the regional presentations from your various panel discussants. And it is only after we have heard those regional presentations that we are going to have the question and answer sessions.

Our theme speaker this afternoon, ladies and gentlemen, is Dr. Gale Johnson, and it gives me much pleasure to introduce him to you. Dr. Johnson comes to us from the University of Chicago where he has a most distinguished service as professor of economics, while also serving as the Chairman of the Department of Economics. He was professor of the University from 1975 to 1980. Dr. Johnson was educated at the University of Wisconsin, Chicago, in Iowa State, and joined the faculty of the Department of Economics at the University of Chicago in 1944. In 1954, he received his full professorship. In addition to work at the university, which now spans 40 years, Dr. Johnson has served on a number of government commissions and in advisory capacities to a number of government bodies on issues related to food and agriculture. I am sure that most of you know that Dr. Johnson has written extensively on the subject of food and agriculture, and among his many publications I would mention World Agriculture in Disarray, World Food Problems and Prospects, Progress of Economic Reform in the People's Republic of China, and Prospects for Soviet Agriculture. Ladies and gentlemen, it is my great privilege and honour to give the floor to Dr. Johnson.

DR. GALE JOHNSON (Chairman, Department of Economics, University of Chicago): Thank you very much. I have the very daunting task of trying to say something meaningful about the world grain trade at and around the turn of the century, and I am going to try to present to you three aspects of that.

The first is some comments about probable trends in prices and in the volume of trade in grain if the current domestic and international trade policies remain more or less unchanged. Second, I shall review some of the recent studies of what would happen to prices in international markets if there were significant liberalization of trade in wheat and other grains. Finally, I will consider how international trade in grain is likely, or one might say, might be organized at the turn of the century.

Before turning to any one of these points, there are perhaps a couple of notes I might make about the important commodity with which most of you in this audience have some direct contact. Sometimes those who are the most familiar with it often do not understand some of the unique aspects of the particular commodity. I will mention two.

One of these is that there are very few products in common use in the world that cost less per kilogram than grain. You really cannot count very many. For example, did you ever stop to think that wheat and maize sell for less than a carbonated beverage, kilogram for kilogram, or for less than steel or for less than the nutrients in nitrogen fertilizer? That is the first point.

The second point is how remarkable has been the progress in lowering the cost of wheat and other grains relative to wages. In the first decade of this century, the average wage of a manufacturing worker in the United States was such that it took about five hours of work to equal the farm price of a bushel of wheat, or in other words eighteen (18) hours per 100 kilograms.

In 1984, one hour of work equals approximately three bushels of wheat, or about 75 minutes for 100 kilograms. In three quarters of a century, the purchasing power of work in terms of the farm price of wheat increased almost fifteen (15) times.

Let me now turn to the issue of some of the prospects for changes in prices and the volume of trade in grain in the rest of this century. The first aspect of this is to look at what has happened in the past with respect to prices, and here I am talking at all points essentially about prices that have been adjusted for the rate of inflation, I am not talking about changes in the nominal price of any product.

The real grain price, prices received by farmers in the United States -- I have done other work on international prices that reveal the same thing -- for wheat and barley and rice have been on the decline since 1870, more than a century. For maize or corn, the real price has been falling since 1910. These falls have been interrupted by war, by the advance of the early and mid-1970s, but the downward trend is inexorable, as you will see in the charts that are in my paper (see overleaf).

The second note here is that the current prices of grain in international markets, particularly of maize, but also of wheat, are significantly below what they were during the Great Depression. (See Table 1) Those of us who are roughly of my age think of the Great Depression as being the time in which farm prices were the lowest almost forever. The prices of grain are now lower than those prices, particularly for wheat and corn, not by just a little bit. For example, during 1930-34, the export price of corn from the U.S. in 1967 dollars was US\$68 a tonne. In 1982, it was US\$39 a tonne or a decline of almost 30% from the earlier level.

This morning, Mr. Donaldson spoke about the rapid growth in world grain trade during the 1970s -- something that I also comment on in my paper -- more than a doubling during that one decade. I do not think that we can anticipate anything of the same order of magnitude of growth for the rest of this century. In fact, the projections that have been made by various other agencies are, in my opinion, perhaps on the pessimistic side. The Secretariat of the International Wheat Council, for example, has projected a long-term grain growth, world trade growth in grain, of just 1.2% per annum for the last two decades of this century. The U.S. Department of Agriculture has projected 2.7%. These are less than half of the growth rate during the 1970s when it was more in the order of 7%. Whether it is half or lower or the rate of growth

Figure 1

WHEAT PRICES RECEIVED BY FARMERS

Deflated by 1967 = 100 W.P.I.
(dollars per bushel)

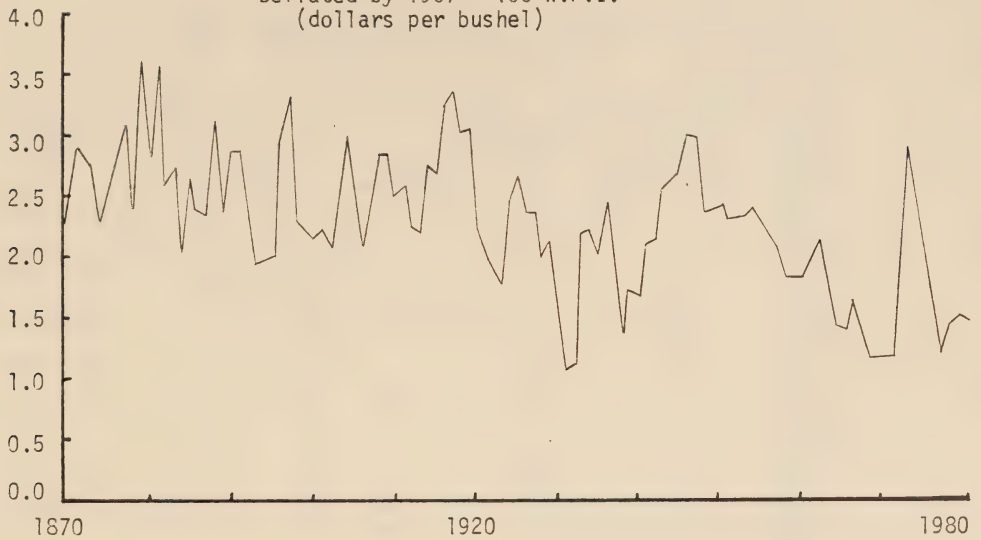


Figure 2

RICE PRICES RECEIVED BY FARMERS

Deflated by 1967 = 100 W.P.I.
(dollars per 100 pounds)

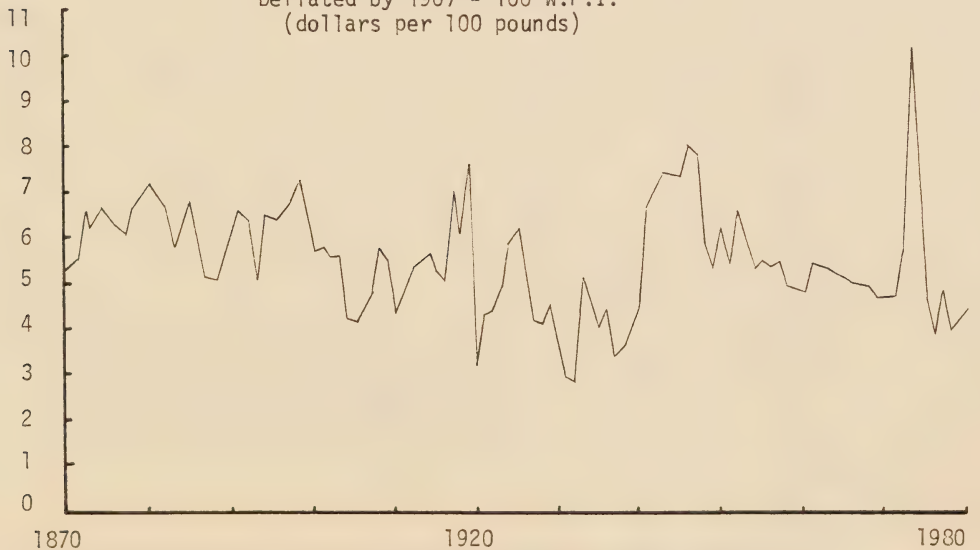


Figure 3

BARLEY PRICES RECEIVED BY FARMERS

Deflated by 1967 = 100 W.P.I.
(dollars per bushel)



Figure 4

CORN PRICES RECEIVED BY FARMERS

Deflated by 1967 = 100 W.P.I.
(dollars per bushel)



T A B L E 1

REAL EXPORT PRICES FOR WHEAT AND CORN, UNITED STATES
SELECTED YEARS, 1910-1983*

Calendar Year	Wheat	Corn	- Calendar Year	Wheat	Corn
1910-1914	100	74	1969	57	48
1925-1929	103	76	1970	53	52
1930-1939	66	68	1971	54	50
1935-1939	79	85	1972	54	46
1945-1949	122	94	1973	80	63
1950-1954	95	80	1974	110	79
1955-1959	69	61	1975	95	76
1960	65	53	1976	80	64
1961	69	52	1977	58	52
1962	70	52	1978	61	50
1963	69	56	1979	67	50
1964	69	57	1980	66	50
1965	62	57	1981	62	50
1966	62	56	1982	56	39
1967	64	54	1983	54	45
1968	60	48			

* The export prices are export unit values;
the price deflator is the U.S. wholesale price index.
Source: U.S. Department of Commerce,
Statistical Abstract of the United States, various issues.

is even slower, I think it can be subject to the same controversy. The fact that the growth in world trade in grain will be lower during the rest of this century than during the 1970s is not subject to significant controversy. One only needs to look at the source of growth in world grain trade during the 1970s to understand why this will be the case. (See Table 2) The Centrally Planned Economies, including the USSR and the Eastern Europe and the People's Republic of China, accounted for approximately half of the 125 million tonne growth in world grain trade in the 1970s. Why did their role become so important during that decade? Briefly I think the following reasons are the most important.

The first one was the relatively poor performance of Soviet agriculture. This poor performance during the decade and particularly after 1975, induced the Soviet Union to import what by any standards of the past were enormous quantities of grain.

The second is that Eastern Europe -- this is outside of the Soviet Union -- had a very rapid growth of meat production and consumption during that decade. Poland, as an example, increased its per capita consumption of meat by 40%, by 20 kilograms in the decade of the 70s. To the best of my knowledge, such a rapid growth of meat production and consumption, in so short of time, has never been accomplished anywhere else in the world. Eastern Europe generally increased per capita consumption by a third.

A significant part of this increase in meat production was made possible by the importation of feed, much of it, it turns out, based on borrowed money.

Third, China after the death of Mao made the decision and carried it out to improve the living standards of its people, and it has done so. One of the consequences of that is that grain imports went from about 2 million tonnes in the mid-70s to 15-16 million tonnes by the end of the decade, and have increased slightly since.

A fourth factor that is relevant to all of the areas, the USSR, Eastern Europe and China, is that the governments of these countries have followed policies, in particular a policy of constant nominal prices for major food items, which has meant that in each of the countries there has been a general tendency for demand to exceed supply putting pressure upon the governments to expand food supply in order to narrow the difference between demand and supply. And one of the ways of narrowing that has been to greatly increase their import of grain and other feeding materials.

The magnitude of these food subsidies are now enormous. In the Soviet Union, they are approximately 50 billion rubles; in China, accounting for 20 to 25% of the national budget; and remain very large in all the Eastern European countries, except Poland.

TABLE 2

International Trade in Cereals by Economic Groups, 1960-62, 1969-71, 1977-79 and 1980-82 (million metric tons)

Country Group	1960-62		1969-71		1977-79		1980-82	
	Export	Import Net	Export	Import Net	Export	Import Net	Export	Import Net
Industrial Countries	53.8	37.1	77.6	52.1	148.4	63.1	191.9	73.4
United States	31.4	0.6	36.3	0.4	90.9	0.2	109.0	0.3
Canada	10.2	0.7	13.7	0.5	18.5	0.7	23.8	1.2
Australia	5.9	---	8.8	---	11.7	---	15.8	0.1
France	3.4	1.0	11.4	1.0	14.3	1.9	20.4	1.9
Japan	0.1	5.0	0.7	14.7	0.3	23.3	0.8	24.4
Centrally Planned	9.8	12.4	12.4	17.5	9.3	50.0	7.7	73.1
USSR	7.6	0.6	8.2	2.7	3.7	20.7	2.4	39.3
Eastern Europe	1.3	8.3	7.0	9.7	4.1	16.6	4.0	13.5
China	0.9	3.5	2.0	5.2	1.5	12.7	1.0	18.6
Low Income Countries	2.4	7.3	4.9	10.9	2.8	11.7	3.0	13.5
India	---	4.1	---	3.6	0.8	0.6	0.8	1.0
Indonesia	---	1.2	0.2	1.3	---	2.8	---	2.5
Middle Income Countries	9.6	10.9	17.6	24.2	26.1	49.2	23.8	57.3
Korea	---	0.5	---	2.6	---	4.1	---	6.1
Argentina	5.6	---	5.6	0.1	14.6	---	14.3	---
Brazil	0.1	2.1	1.2	2.1	0.7	4.8	---	5.6
Mexico	0.2	0.1	0.5	0.4	0.1	4.0	---	5.5
South Africa	1.3	0.2	1.1	1.2	2.6	0.2	4.1	0.3
Thailand	1.9	---	2.9	0.1	4.4	0.1	6.0	0.2
Capital Surplus Oil	---	0.7	0.1	2.0	0.1	6.8	0.1	11.6
Exporters	---	---	---	---	---	---	---	---
Total	75.6	68.4	109.8	103.9	186.9	183.3	226.5	228.9

Source: FAO, *FAO Trade Yearbook*, various issues.

However, there is in my mind almost no prospect that the strong growth in grain import demand during the 1970s resulting from the policies and performance in Eastern Europe and the Soviet Union will be repeated during the next decade. Eastern Europe would be unlikely to once again go into debt to buy feed, even if there are institutions willing to lend for that purpose. Thus, it is my view that at best the level of grain imports by Eastern European economies and the Soviet Union of the past few years will be maintained. This is at best. Actually, Eastern Europe has already cut its grain import by half from their peak level toward the end of the 1970s. And I do not see the Soviet Union increasing its imports much above the 30 to 40 million-tonne level.

China is now one of the world's largest grain importers at about 18 million tonnes annually. It would not be wholly unexpected if this rose to 22 to 25 million tonnes within the next decade, nor could, however, one rule out the possibility that there could be a decline to about 10 million tonnes. The recent radical changes in rural policy in China can work both ways in this regard. It is clearly working to increase the rate at which agricultural output is increasing but it is also working to increase the levels of income in rural areas, and in terms of China's import needs, import demand, these will work at cross purposes to some degree. Their grain output is rising at a significant rate, but the demand for grain by the rural people who make up 80% of the total of Chinese population is also increasing at a rapid rate.

To summarize this part of my comments about trends in prices and in quantities, I am generally pessimistic, though perhaps not as pessimistic as either the U.S. Department of Agriculture or the Secretariat of the International Wheat Council, about prospective growth in world grain trade for the rest of this century. But nonetheless, I would put it at a rate no more than half of what occurred during the 1970s.

Consequently, I believe there is no basis to assume that the long term slow downward-trend in real grain prices will be interrupted in the next decade or so. In fact, there is a strong probability that unless there is a substantial reduction in the resources devoted to grain production in the major exporting countries that real grain prices will decline at an accelerated rate. In other words, I think the prospects of speeding up of the rate at which real grain prices decline are greater than are the prospects that this rate of decline will slow down or become constant.

Organization of World Trade in Grains

World trade in grains is subject to numerous pervasive interventions by governments. I assume making that statement is like carrying coals to Newcastle, particularly since many of you in this audience are engaged in these activities. Some of these interventions are the consequence

of specific domestic price support and supply management efforts. Others have a more explicit ideological base, namely the use of state trading either when there is little or no private domestic trading or when there is private domestic trading but private individuals are prohibited from engaging in international trade.

How far is trade in grains influenced by governmental interventions? This is a difficult question to answer by saying more than a great deal. There have been estimates made of wheat imports that approximately 80% of them are involved in state trading; another 14% are involved with variable levies; and another couple of percent are effected by licenses on importation, leaving about 3% of wheat trade outside of significant governmental intervention. For maize or corn, it is estimated that perhaps 47% of it is state trade, about a third or 30% is subject to variable levies, and about 25% is more or less controlled by private trade (see Table 3).

T A B L E 3
CLASSIFICATION OF IMPORT CONTROLS

	1960	1965	1970	1975	1980
<u>Wheat Imports:</u>	%	%	%	%	%
State Trading	62.6	77.9	65.4	75.1	80.9
Variable Levies	34.5	19.4	29.4	20.6	13.6
Licenses	0	0	0	0	2.3
Private Trade	2.9	2.7	5.2	4.3	3.2
<u>Corn Imports:</u>					
State Trading	7.5	6.6	12.0	40.6	47.7
Variable Levies	76.6	80.0	65.9	40.1	27.3
Private Trade	15.6	13.4	22.1	19.2	25.0

Source: Ray A. Goldberg, "The Role of Private and Cooperative Sectors in Global Agribusiness", Global Agribusiness Seminar, Cambridge, Mass., April 8-11, 1984, p. 50. Based on data provided by U.S. Department of Agriculture.

Exports are also significantly influenced by the actions of governments. This is particularly true where you have wheat marketing boards such as the ones in Canada and Australia. Brazil and Argentina intervene in grain export markets either quite directly or through multiple exchange rates or export duties. The European Community uses variable export subsidies to achieve the desired level of grain imports. And the United States (as well as many other countries) uses food aid and subsidized credit to expand exports. In addition, in the United States, price support loans affect exports and target prices may act as an implicit export subsidy when output restraint is ineffective. So, while there may be somewhat less interventions in grain exports than in grain imports, there is still a very substantial amount of interventions on both sides.

Government Interventions in the Grain Trade in the Future

For a person who believes that the market is one of the most important institutions ever devised by man, I see little in recent history that indicates that the role of the market will be enlarged for the grains in the next two or three decades. As noted, wheat imports are almost all controlled by governments, and the role of state trading has increased substantially for corn or maize. Most grain exports are subject to various forms of intervention.

Why is there such a high degree of governmental intervention in the trade in grain? For the Centrally Planned Economies, such as the USSR and the People's Republic of China, the answer seems quite simple -- in these economies the market plays but a limited role for most products, though in China its role is increasingly significant. Certainly, market prices are given very little emphasis in determining production and often market prices are not the main device used to ration available supplies among consumers. But in the market economies of Western Europe, America and Asia, trade in agricultural products is also subject to a great deal of management by governments. This is true though most production decisions in these economies are made in response to price signals (though often prices do not represent ones that equilibrate demand and supply) and an even larger percentage of consumption decisions are price responsive.

Yet, in agriculture, there is much intervention in prices. Two reasons are often given by governments for intervening in the domestic markets for grains and managing international trade, in order to maintain reasonably stable internal prices for producers and consumers. These two reasons are: first, that international market prices are significantly distorted by the interventions of many governments. It is generally argued that international market prices are now below what they would be under free or liberal trade. Yet the policy makers who use this argument have made little or no effort to undertake the studies that would be required to indicate the magnitude of the distortion.

The second reason, is that international market prices are highly variable and undependable. I have a quotation in my paper from the Report on Agriculture of the Commission of the European Communities, which gives reasons why it objects to the use of world market prices as any basis for comparison, and makes both of these points. One, these prices are too low, thus, if the European Community depended upon upon them, international market prices would increase sharply, and secondly, they are highly variable.

The issue with respect to variability of international prices is not primarily that of the degree or extent of protection, but rather whether a given political entity should prevent the variations in international market prices from penetrating its own borders.

What do we know about the probable increase in world market prices if there were substantial liberalization of agricultural trade? And what do we know about the volatility or variability of international market prices under liberalized trade compared to the intervention that now exist? There have been a number of studies that have analyzed the effects of these agricultural and trade policies upon the level and variability of international market prices for grains. I summarize a number of these in my paper. Time prevents me to do more than to even give a briefer summary. But fundamentally, what the studies show are that while the international market prices which we have seen in recent years are lower than what they would be, had either free trade or more liberal trade been followed, the degree of the distortion is relatively small.

Very briefly, a study undertaken at the International Food Policy Research Institute asks what would happen if the OECD countries reduced their trade barriers to agricultural products by 50 percent. Generally speaking, the increase in international market prices that would come from that was less than 5% for maize, wheat, milled rice and soybeans. In other words, a 50% cut in trade barriers by the Eastern Europe, by Western Europe, Japan, United States, Australia, Canada, would have resulted in an increase in international market prices of just 5% or less.

Perhaps the most extensive work on this topic has been done in Australia, and it has been done by a man by the name of Rodney Tyers and his associates at the Australian National University. In one study, they asked themselves: "What would have happened to international market prices if all the large OECD countries, plus a number of important market developing countries -- the ASEAN members plus India, Korea, Pakistan, and Sri Lanka also had liberal or had free trade?" Trade liberalization was not assumed for the Centrally Planned Economies or for Western Europe outside the European Community. They attempted to estimate what the international market prices would be after periods of three, five and eight years under the assumption of the continuation of the agricultural and trade policies of the late

1970s and free trade in the countries indicated (See Table 4). Basically what he found as far as the grains were concerned was that under free trade, the prices of maize and wheat would have been approximately 10% higher under free trade than they are now. Actually, for maize or coarse grains, generally the difference was only 5%.

T A B L E 4
EFFECTS OF MULTILATERAL AGRICULTURAL LIBERALIZATION
IN THE PRINCIPAL MARKET ECONOMIES AND ASEAN ON
INTERNATIONAL TRADING PRICES

		1980	1985	1990
Trading Prices, \$(1070)/tonne				
Rice	Reference*	128	148	175
	Liberalization**	115	134	139
Wheat	Reference	64	57	61
	Liberalization	51	63	65
Coarse Grain	Reference	49	49	53
	Liberalization	47	54	55

* Projections based on continuation of agricultural policies as of late 1970s.

** Free trade, both internationally and domestically, assumed to prevail in Australia, Bangladesh, Canada, India, Indonesia, Japan, Republic of Korea, Malaysia, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, United States and European Economic Community.

Source: Rod Tyers, "Effects on ASEAN of Food Trade Liberalization in Industrial Economies", Research School of Pacific Studies, The Australian National University, paper presented to Second Western Pacific Food Trade Workshop, Jakarta, 22-23 August 1982.

They also got the result, which after you think about it is not too surprising that in the case of rice, free trade would result in a lower international market price (See Table 5). The reason for this is that there are so many countries that depress domestic prices for rice and thus reduce production, and depress consumer prices and thus increase consumption. These countries have higher imports than they would otherwise. So in this case, contrary to the general view that freer trade in the current situation lowers international market prices, in the case of rice his studies would indicate that free trade would result in higher international market prices than now exist in contrast for wheat and coarse grains, where there would be small increases, but increases of less than 10%.

Estimates of distortions in international market prices due to the domestic agricultural and trade prices particularly of the industrial countries of approximately 10% seem reasonable. And it is pertinent to note that a significant part of the distortion results from the policies of those who argue most strongly that international market prices fail to reflect the underlying supply and demand condition in the world.

The second reason noted earlier that governments use to justify intervention in prices and trade is that international market prices are highly variable. There have also been studies made on this score, which is an effort to compare what the variability of international market prices would be under liberal or free trade and what they are under existing policies (See Table 5).

Very briefly, both the analytic aspect of it and the statistical studies show that the current prices, particularly policies of stabilized domestic prices, contribute significantly to international price instability. In other words, domestic price stability is bought at the cost to somebody else, of greater price instability and the studies that have been made indicate that approximately half of the instability in international grain markets today is due to governmental policies. Only half is due to variations in the underlying demand and supply situation. So that either one of these arguments as to why we should have intervention seem to me to rest on relatively weak grounds. International market prices, for the grains especially, are not seriously distorted by the policies, perhaps 10%. International market prices are made much more unstable by the policies that governments follow, or most policies, not by all.

Grain Trade in the 21st Century

Up to this point, I have tried to make the case that the current national grain price and trade policies are not justified by the arguments made for those policies. International market prices of grain are not, on the average, seriously distorted. In any case, the degree of distortion seems insufficient to justify many of the interventions that we see today.

If I have made the convincing case that many of the present forms of intervention in international trade in grains are not justified by valid arguments, do I believe that there will be a significant modification in the way that grain trade is organized in the years ahead? Not necessarily. In fact, I believe that of the three broad categorizations of how grain trade will be conducted at the turn of the new century, the most probable is a continuation of the present set of policies and programs by the major grain trading countries. The other two main alternatives -- first, international agreements to significantly affect the level and variability of prices and to influence the location of world grain production; or second,

T A B L E 5

EFFECTS OF MULTILATERAL AGRICULTURAL LIBERALIZATION
IN THE PRINCIPAL MARKET ECONOMIES AND ASEAN ON
THE VARIABILITY OF INTERNATIONAL TRADING PRICES

		1980	1985	1990
Coefficients of Variation of Trading Prices*		%	%	%
Rice	Reference**	28	34	29
	Liberalization***	15	8	12
Wheat	Reference	44	44	48
	Liberalization	35	21	28
Coarse Grain	Reference	24	22	21
	Liberalization	14	15	20

* The coefficient of variation is derived from estimates of trading prices and the standard deviation of the trading prices. The coefficient of variation is the standard deviation divided by the mean trading prices for the particular year and policy regime.

** Projections based on continuation of agricultural policies as of late 1970s.

*** Free trade, both internationally and domestically, assumed to prevail in Australia, Bangladesh, Canada, India, Indonesia, Japan, Republic of Korea, Malaysia, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, United States and European Community.

Source: Rod Tyers, "Effects on ASEAN of Food Trade Liberalisation in Industrial Economies", Research School of Pacific Studies, The Australian National University, paper presented to Second Western Pacific Food Trade Workshop, Jakarta, 22-23 August 1982.

Significant liberalization of international trade in grain that would include not only a reduction in the levels of protection but also changes in the form of protection -- seem to me to be less probable than rather minor tinkering with present programs and policies.

While I believe that most of the present policies are not justified by the arguments used to justify them, this does not mean that these policies will be substantially modified in the years ahead. These policies obviously serve the interests of certain groups in each country. The policies and programs do not exist as an accident. Some powerful and influential groups would be adversely affected by substantial modification in them. And, if we think about it a bit, it is probable that these groups, who would be adversely affected, include others besides farmers. In fact, for some aspects of the national policies, such as the flour export subsidies used by the European Community and the United States, the beneficiaries are not the farmers but the processors. And I could give other examples, but I will not take your time.

I do not mean to imply that the current policies will remain completely unchanged. If for no other reason, these policies have become very expensive and are pressing against budgetary constraints as well as, in many cases, imposing substantial costs upon consumers. Roughly speaking, in 1983 governments of the United States and the European Community had farm policies that cost their taxpayers and consumers approximately \$80 billion and when one adds similar costs for Japan of \$21 billion and the USSR of \$60 billion, the total for the big spenders came to at least \$160 billion. In both the United States and the European Community, the high budgetary costs of the farm programs have brought forth modest efforts to reduce those costs. Costs may be reduced to or kept at politically acceptable levels, but in all cases, the "politically acceptable level" of costs seems to be substantially greater than zero.

The alternative of international agreements is meant to include an agreement that requires the signators to agree to take action, under defined conditions, with respect to prices, storage and, perhaps, levels of exports and imports -- and even perhaps supply management. The liberalization of trade could also result from one or more international agreements but I do not include that in this area.

Why am I pessimistic about the possibility of an international agreement based mainly on historical reasons? Part of the issue is, I think, almost always a difference of view of what the prospective course of developments in the grain market is going to be in the years immediately ahead, say the next five years. This was clearly illustrated in the 1978/79 negotiations when the exporters held out for a higher price range than the importers would agree to. The price band proposed by the exporters of \$150 to \$210 for an export price has turned out very well, though for the wrong reasons. The failure to

express the price band in deflated prices implied that real international wheat prices were expected to decline at approximately the same rate as the general increase in prices in the United States. In all likelihood, the discussions simply failed to reflect the possibility of continued inflation in the industrial countries. In fact, the price movements for wheat have generally been in the \$160-\$200 range for consultations and have not moved outside the band that would call for either stock accumulations or stock releases if the agreement had been put in force.

The latter part of my paper deals with the issue of the liberalization for trade, the problems that I see in that area with respect to GATT negotiations in achieving substantial modifications, and that is ruling out all possibilities of liberalization. So, I would conclude my comments very briefly with the following statements:

I conclude that the growth of world trade between now and the end of the century will be far slower than the extraordinary growth of the 1970s. Grain prices in world markets will continue to decline in real terms because supply will grow somewhat more rapidly than demand.

Governmental intervention is now pervasive in world grain trade, perhaps somewhat more on the import side than for exports. The interventions are to a considerable degree a function of domestic agricultural policies and significant liberalization of international trade in grain will require modification of domestic farm programs. It is also true that an international grain agreement, either for all grains or for wheat, requires modifications of domestic policies and this is probably why an agreement has no greater prospect than liberalization. The unwillingness to make such modifications has been one of the factors that has prevented reaching agreement in recent years, though differences in opinion concerning the prospective course of grain prices and who should bear the costs of holding stocks and managing supply may have been of equal importance.

Consequently, I conclude that the most likely organization of world grain trade at the turn of the century will be a continuation of present forms of governmental interventions. If there are changes in domestic programs, the reason will not be to facilitate either an international agreement or trade liberalization but because the budgetary costs of current programs have reached unacceptable levels. But even then, it is likely that the changes in domestic programs will be no greater than are required to hold costs at politically acceptable levels. Thank you very much.

MR. JOHN PAROTTE (Moderator): Thank you, Dr. Johnson, for an excellent presentation. I think that this should give rise to several questions, and I hope that the questions will be forthcoming. But while I am expecting questions, there is one I would ask you, Dr. Johnson, and it is in relation to what was discussed this morning. There was general

optimism at the possibility of expanding production because of progress in technology, but none of the speakers this morning referred to at what costs could that production be expanded and I was really fascinated by your comment that in fact in the long term, there is no basis to assume that the downward trend in real grain prices will be interrupted in the next decade or so. In fact, there is a strong probability that unless there is a substantial reduction in the resources devoted to grain production in the major exporting countries, that real grain prices will decline at an accelerated rate. But how can one reconcile that if the farmer is going to get less for his wheat or his grain? The experts this morning thought that the expansion of production was limitless, but I do not think that they took into account the remunerative returns to producers.

DR. GALE JOHNSON (Theme speaker): Well, I am certainly not arguing that the prospects of expanding grain production are limitless, and I think the context of the discussion this morning was simply that the potential for expansion was very great. Whether it will be realized or not will depend, to a large extent, on economic conditions as you implied. Basically what I am saying are two things. First, grain producers around the world have been very productive organizers of their activities, and the rate of change of improvement in productivity in the production of grain has been more rapid than in the economies as a whole. As a result of that the price of grain, relative to the price of all other products, has fallen. For certain products, it has fallen for at least a century. For others, it has fallen for seven or eight decades, and I was simply saying that I think this trend is going to continue. In the part of my remarks that you quoted, I believe that, partly as a result of policies followed by my own government, but also because of policies followed in Canada and by some other governments, we have encouraged an expansion of production of grains, especially of wheat, that is not going to be sustainable in the years ahead. That is why, if it is going to be a remunerative occupation, some of the resources that have been brought into production in the last ten years, in part because of the great optimism about future grain prices in the mid and late 1970s, are going to have to be withdrawn.

MR. JOHN PAROTTE (Moderator): Thank you, Dr. Johnson. Another question for you is:

What is your definition of "free" world grain trade from an exporter's point of view?

DR. GALE JOHNSON (Theme speaker): The measure that was used, and this was used to describe studies, was simply that throughout the world or the areas where there is to be free trade, the domestic prices and the international market prices were to be the same, subject of course to

any cost of transportation and marketing. It was simply that, there was to be no artificial barrier at the border between the international market price and the domestic price.

MR. JOHN PAROTTE (Moderator): Thank you. Another question addressed to you, Dr. Johnson:

To what do you attribute the trend of falling relative grain prices in world trade over the past century?

DR. GALE JOHNSON (Theme speaker): Well I think to some degree, I answered that in response to the earlier question. It is simply because of the work of researchers, such as those working at CIMMYT, and also in our Agriculture Department stations in North America and Western Europe, which have devised new ways and cheaper ways of producing grains, and the fact that farmers are efficient organizers of their enterprises. These two things, combined with the fact that the fertilizer prices over the past few years or many years have fallen rather than risen, compared to other prices, have meant that we have been able to produce grain cheaper while providing most of the time a reasonable level of income for farm people. And I think that those sets of circumstances are going to continue.

MR. JOHN PAROTTE (Moderator): Thank you, Dr. Johnson. The next question:

Was there not a certain contradiction in your presentation in the sense that you have indicated that it was estimated that price increases that would result from a 50% reduction in trade barriers on farm products for OECD countries, would have been less than 5% for maize, wheat, milled rice and soybeans; and as you also indicated that those trade barriers should be reduced, but since trade barriers are usually erected for social and other purposes, is it really worth it?

DR. GALE JOHNSON (Theme speaker): Well I suppose it depends to whom is it really worth it? I would assume mainly that the exporters from some of the developing countries, with their somewhat higher prices for products, would feel it was worth it. The point I was trying to make was really a rather different one, though I can understand that this question arose. The disturbance in the world grain markets would not be that great if we move toward free trade. The reason is that there are some policies in the world that reduce production and increase consumption on the one hand, whereas there are also policies that expand production and reduce consumption. So when you abolish both of them or significantly reduce both of them, the net impact upon the international market prices is relatively low. And whether it is worth doing is a judgment that the political process has to make. So far, I

would say the political process has made the judgment that it is not worth very much in that we have not gone very far toward it. But I think that is not an argument, however, for continuing to be in ignorance. This seems to me to be the policy of most governments around the world, not to want to study these issues at all.

MR. JOHN PAROTTE (Moderator): Thank you, Dr. Johnson. Another question is:

Would it not, in the future, be possible to use grains for other purposes than food and animal feed, i.e., for industrial purposes?

DR. GALE JOHNSON (Theme speaker): Obviously there are modest uses of grains, particularly corn, for industrial purposes. If the reference here is to the use of corn or another grain for alcohol, I think the evidence is very clear that this is a very low value use of the corn or any other grain, sorghum, millet, if petroleum prices stay in the neighborhood of \$50 a barrel or less. It has to get significantly higher than that before you can profitably transfer corn into alcohol, and in fact until we change the sources of energy that we use in the processing of corn into alcohol, it is not obvious that there is a net gain in the number of calories or BTU's produced. There maybe a change in form but not a change in the total. There are not all that many alternative uses for taking a product such as grain away from food and feed and using it efficiently in some other activity.

MR. JOHN PAROTTE (Moderator): Thank you, Dr. Johnson. The next question is:

What would be the long-run consequences for global grain trade patterns? What would be the consequences of technological breakthroughs in two major areas; one, economic desalinization of sea water; and two, biological nitrogen fixation?

DR. GALE JOHNSON (Theme speaker): Well the first, desalinization of sea water, if it becomes economic, will certainly make other production of grain possible, and probably even profitable in many parts of the world where it is not now. Certainly some countries that are now fairly important importers, such as those in the Middle East, could clearly become self-sufficient. The impact of this would be a change in the location of the production of wheat mainly. Corn is still not produced in very many places, in large quantities under irrigation.

Biological nitrogen fixation will, I assume, also have locational impact. I assume the major impact there would be outside of agriculture, in that it would reduce the demand for nitrogen purchased from the rest of the economy; presumably it would also be used only because of lower cost in the purchasing of the nitrogen, so it would lower costs of production. But I would say the major impact would

probably be in the agri-business sector, the input producing sector, rather than within agriculture. Unless it were true that nitrogen fixation worked much better in tropical climates than it did in temperate climates and so on.

MR. JOHN PAROTTE (Moderator): Thank you. The last question, Dr. Johnson:

What assumptions do you make about 1) technical change in agriculture among developing countries; and 2) income growth in those countries? If the rate of change in agriculture or technology is uneven, would one not expect a significant increase in trade, assuming income growth?

DR. GALE JOHNSON (Theme speaker): As I review what has happened over the past 20 years, or even 25 years, we have witnessed significant technical improvements in agriculture, certainly in Asia and to a lesser extent in South America, and still a lesser extent perhaps in Africa. But in Asia, the changes I think have been, at least on a percentage of annual basis of improvement, not so different than what they have been in Western Europe and in North America. In fact, one can be optimistic about the future in that in many cases what is required to improve yields, for example in Asia and Latin America, is really applied research which brings to bear knowledge already known in the world; it does not require discovery of new knowledge. It requires a lot of work, true, but of adapting what is now known to the local conditions and this of course is what is being done. It is being done at the international research institutions, it is being done in experimental stations in India, Malaysia and many other countries. I would expect that to continue.

I do, however, think that inference needs to be drawn about the income growth. We have seen what has happened in the expansion of trade in recent years. We have seen that income growth, particularly along the edges of Asia, in Korea, Taiwan, Singapore and Hong Kong but also in the Philippines and Indonesia, has been associated with a significantly larger growth in imports of food products, a larger rate of growth of imports than of the income growth itself. And the more rapid the income growth, the more rapid has been this growth of imports. So clearly yes, I would say a rapid income growth in the developing countries will result in a substantial increase in trade. I suppose the one hope the agriculturalists of the industrial countries, the high income countries, really have, is for the success of the developing countries in expanding their income as well as their agricultural production. Thank you.

MR. JOHN PAROTTE (Moderator): Well thank you very much, Dr. Johnson, and I would like to thank you also on behalf of the audience and the panelists for your excellent presentation. It has been stimulating, provocative, and it did provoke quite a number of interesting questions. We also thank you for the way that you have fielded those questions.

The second speaker this afternoon is Monsieur Bruno Catton. Monsieur Catton is from France. He is a graduate in agriculture and joined the National Union of Cereal Co-operatives (UNCAC) in 1964. He has held a number of positions with this body and in 1980, he became director general. I should mention that UNCAC groups about 400 local co-operatives and it is the number one grain seller in France. As director general, M. Catton is responsible for the overall activities of the Union of Co-operatives including the subsidiaries which are involved in seed trade internationally, as well as the engineering and construction of equipment for the grain industry. I would also add that M. Catton is vice-chairman of Toepfer International. So I have much pleasure in giving the floor to M. Catton, who, as I understand it, is going to give his presentation in French. Monsieur Catton.

M. BRUNO CATTON (Directeur général, Union Nationale des Coopératives Agricoles de Céréales, France): Mr. Chairman, ladies and gentlemen, our purpose to-day is to give a European approach to "The World Grain Trade beyond 2000". It is a provocative theme at a time when in most lines of activity and in most countries, the key words are uncertainty and concern. Uncertainty, because the reference system we had during the past twenty years collapsed, and concern because the prospects for the next twenty years are uncertain.

That comment applies across the board, including to grain related activities. This climate of uncertainty is new for the present generation, particularly in Europe, where they had no doubts as to the necessity and the desirability of a constant development of production and find it difficult to accept the idea of regulation, be it for a short period and in order to face up to a momentary stagnation in world demand.

I note, however, that in the past alarmists have always been wrong, with respect to grain. This is why, in the current period of crisis and uncertainty, the I.W.C. secretariat's new approach (Document No. 14) which foresees a recovery -- but a slower one -- in demand and world trade, seems both prudent and realistic. And it is by reference to this study that we shall give a "West European point of view".

Before turning to the prospects for the next twenty years, I would like to give you my own view on some typical facts about the evolution of grain economics during the past twenty years and about the current situation. It is based on these observations -- which are not neutral but certainly inspired by my French nationality and my position within a cooperative undertaking which is also an exporter -- that I would like to raise a few issues regarding the future, to try and understand it better.

1. One of the essential points during that period was the emergence of the concept of food security and independence. This event was amplified by the end of the colonial era and also towards the end of the 70s, by the introduction of the notion of "food-weapon", an aggressive version of "green power", in the diplomatic language. Three consequences were:
 - To a certain extent politics were brought into the grain trade and things came to a head with the embargo.
 - State intervention developed with the purpose of influencing production levels and controlling trade.
 - A third consequence of the growing concern for food security is that countries that can do so -- namely that have the financial or political means -- want to diversify their sources of supply to limit the effect of political pressures (embargo) or those of climatic accidents (drought). It is an essential point for the future of cereal exports made by the European Economic Community beyond 2000.
2. Another major fact, in the past 20 years, is the great instability of prices.

The result has been increasing risks for the operators, the withdrawal or collapse of a number of nation-wide importers or exporters -- and more than before, a growing concentration of international trading operations into the hands of a few large companies. This is a significant trend in Europe and seems to be a persistent trend for the future. That is the reason why the co-operatives are less present in the world markets even while they share an important part of international markets.

3. With the recent developments in the international crisis, new phenomena will raise problems in the future, such as the financial capacity of the buying country. This has two consequences: sales on credit terms (Government or bank loans) and barter compensation operations.

New forms of distortion of competition appear between countries and companies depending on whether they are willing and able to do this type of deal. In the short term, we will have to worry about the impact it would have on the volume and geographical structure of international trade if such a phenomenon was to grow.

In the medium and long term, it is known that world trade in grain requires an improvement of income in developing countries which, relying on the International Wheat Council's projections, will achieve in the year 2000 two thirds of the world importations of cereals.

For many among them such an improvement will only be achieved to begin with through the development of their agriculture, thanks to protective measures at the borders, so as to raise the price paid to farmers as an incentive to produce more.

4. The development of grain consumption by animals and in particular the change in feeding techniques (from grazing to compound feeds) are the major elements involved in the growth of grain trade and consumption.

Furthermore, the European Community's example shows that a new fact must be considered when looking at the development of animal consumption: the existence of substitute products (manioc, corn gluten feeds, citrus pellets...), the production of which can grow.

In some European regions, compound feeds which in 1960 were made with 63% grain, 13% soya cakes, are now made with 16% grain, 29% soya cake, 15% manioc, 12% corn fluten feed, 7% citrus pellets, etc...

Therefore, the issue of grain in the European Community and possibly in the world tomorrow can no longer be approached without taking into account this phenomenon.

Having established these facts, I would now like to make a few comments on the state of the European Community with regards to the year 2000.

The French grain producers (AGPB) held their annual convention eight days ago. They recognize the existing tension on world markets, due to a stagnation of demand, but consider that in terms of outlets -- if not in terms of income -- medium and long term forecasts are in their favour. But it requires that their exports to the very large markets that surround them to the east and to the south are not reduced by export limiting measures, whose merits they deny completely.

I agree with their analysis, and would like to show why it is realistic when looking to the future beyond the year 2000. The European Community will then be confirmed in its rank as third or second exporter world wide, and first or second largest importer of products for animal feeds. The Community will, therefore, be directly open to world trade, imports and exports alike. The European Community ranks first amongst world barley and malt exporters but, before anything else, it is a wheat and flour exporter on the international market. Its main concern in the next twenty years will therefore be to find outlets for the wheat which it will produce in large quantity.

Before trying to see how it will solve this problem, I would like to make a few comments on the volume of imports into the European Community.

The most commonly held idea is that in developing its grain production the European Community has substantially cut back its imports. This cannot be disputed if we only consider grain (The EEC imported 25 million tonnes of grain from 1960 to 1975) but it is completely untrue if we consider -- as is logical -- all food imports, whether for humans or for animals (grain, substitute products, and soya). In doing so, we note that imports made by the Community amounted to 29 million tonnes in 1960, 38 million tonnes in 1970, 45 million tonnes in 1980 -- that is to say as much as the Soviet Union for the same products at the same time.

It was the evolution in animal production technologies, the availability of large quantities of cheap new products (tapioca, corn gluten feed) which brought about this reduction in grain imports, not the increase of European production.

In spite of the price policy enforced during several years (price increasing more slowly than the costs), European production should continue to grow.

According to various surveys, the increase could be around 20 million tonnes in 1993. Given the imports, the balance available for export to the world market would be 25 to 30 million tonnes. The balance would essentially be composed of wheat. The export increase would thus be 5 to 10 million tonnes.

Since we have no reliable forecasts for the year 2000, let me simply note that the International Wheat Council estimates that world trade in wheat will then be 112 million tonnes. The Community's share in that trade, based on the 1993 forecast, would be 18 to 22 percent.

European grain producers consider that they should not have any major problems selling this additional production in 20 years from now.

A few reminders of economic geography to support this statement:

- Countries of the European continent (East and West) have a population of 755 million people.
- North Africa and the Near East have a population of 220 million people.
- Central Africa has a population of about 180 million people.

Thus within a radius of less than 4000 km around Paris, there are more than one billion people, that is to say one quarter of the world population.

In 1978/80, grain production in this area was around 500 million tonnes, that is one third of the world production (rice included). The balance between imports and exports, for that area and at that time showed a deficit of about 80 million tonnes.

As regards wheat in particular, that area imported 48 million tonnes per year from 1980 to 1982, that is close to 50% of the world imports.

European grain producers have "within their reach" a market three times larger than the grain available for export, a market made up of countries mostly wishing to have diversified sources of supply. It justifies their confidence in the future and their wish to see the Community adopt, as far as they are concerned, a policy that will enable them to seize this opportunity.

In addition to such a policy, multi-year supply agreements should be signed abroad with the main buying countries, as other major exporting countries have been doing for many years.

It seems that for the next twenty years three facts will prevail in the grain trade.

- State intervention will remain active within a context of increased competition and tension between exporting countries.
- A high degree of instability linked to a large potential increase of supply occurring simultaneously with increased import requirements but in countries where financial resources are inadequate.
- Persisting under-nutrition for a large share of the world population for whom the concept of food security is an unattainable privilege.

The international community cannot, must not, remain passive in such a context. It is under an obligation to look for ways and means to provide greater food security for all, through the expansion of production and a reasonable market stability that will give confidence to producers and to consumers alike.

This is the mission before the International Wheat Council. It has to face up to this extraordinary challenge, extraordinary because of its political and human implications. It must prepare the instruments for such a policy which is part and parcel of a more general issue: that of relations between industrialized and developing countries.

And this is why I fully support the conclusion of the survey made by the IWC's Secretariat on the long term grain outlook. It is full of simplicity and common sense:

"The political will of governments to meet the longer-term objectives of market stability and food security has often had to bow to the pressures of irreconcilable immediate interests. Nevertheless, there is now a much greater awareness of the difficulties with which the grain economy will be confronted in the future. The search for mutually acceptable solutions to these problems must continue. Progress in that direction, however modest, is the best hope for producers and consumers alike."

MR. JOHN PAROTTE (Moderator): I thank you, Monsieur Catton for your brilliant intervention and I must say I was very happy to hear you base your intervention on documents from the International Wheat Council. I wish also to thank you for your kind words about the Council.

Ladies and gentlemen, we now move to our third speaker this afternoon, Mr. Vijayasekharan, who is from the Government of India. Mr. Vijayasekharan entered the Indian administrative service in 1955 and has held a variety of appointments at the provincial and Government of India levels. At the provincial level, he was secretary to the government in the Industry, Transport and Community Development Departments. In the Government of India, he has worked in the Housing Ministry, Defense Ministry, and now in the Ministry of Food, where he is of the rank of an Additional Secretary to the Government of India. Mr. Vijayasekharan.

MR. T.U. VIJAYASEKHARAN (Additional Secretary, Ministry of Food and Civil Supplies, India): Thank you, Mr. Chairman. The subject of my talk is "Food Needs in the Developing World", in the context of the world grain trade beyond the year 2000 A.D.

Any attempt in trying to forecast the pattern of world grain trade beyond 2000 and the food needs in the developing world 15 to 20 years hence will have to be on the basis of some reliable estimates relating to trends in grain production, rates and patterns of consumption, flow of food aid, and other related factors.

A fair assessment of these can be made with reference to specific countries where there is reliable statistical base. The first problem in assessing the food needs of the developing world is that the phrase "developing world" itself is rather nebulous. The FAO have indicated that the words "developed" and "developing" are intended mainly for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process.

Keeping in view the normally accepted definition of the developing world, it could mean countries whose per capita income is below a particular level. These countries stretch practically across all the continents and the reasons for their low income are also varied. Keeping in view the subject of discussion and the country from which I come, I would attempt a forecast based on the experience of India. This could serve as a model in estimating the production, trade, etc. of the other "developing" countries.

India is a big country, the seventh largest in the world, with an area of 3.29 million square meters and also the second most populous country with an estimated population of a little over 700 million persons. The past experience of India in meeting its food needs could be applied with a degree of relevance to the South Asian Region where the agro-economic climatic conditions are broadly similar to other small developing countries which are in different continents.

Now to give a background. At the time of Independence in 1947, India produced around 52 million tonnes of food grains including pulses. For quite some time, the country was a net importer of foodgrains to the tune of about 3 million tonnes per annum.

High in the list of priorities of the Government was to increase production of food grains. The efforts made by the country increased from about 52 million tonnes in 1951-52 to 82 million tonnes in 1960-61 and to 89.3 million tonnes in 1964-65. The tempo of agricultural development and increasing production of foodgrains was further accelerated with the introduction of high yielding dwarf varieties and hybrids of cereals in the mid-sixties. The total foodgrains production in the country is expected to reach a new high level of 150.6 million tonnes during the 1983-84 as against 131.9 million tonnes during 1978-79. Of this, rice is expected to be about 59.95 million tons and wheat, about 45 million tonnes. The growth of total foodgrains production during successive five-year plan in India is shown in the table:

PRODUCTION OF FOODGRAINS

Year	Rice	Wheat	Others (including pulses)	Total
----- (million of tonnes) -----				
1965-66	30.7	30.9	10.4	72.0
1966-67	30.4	11.4	32.4	74.2
1967-68	37.6	16.5	41.0	95.1
1968-69	39.8	18.7	35.5	94.0
1969-70	40.4	20.1	39.0	99.5
1970-71	42.2	23.8	42.4	108.4
1971-72	43.1	26.4	35.7	105.2
1972-73	39.3	24.7	33.0	97.0
1973-74	44.1	21.8	38.8	104.7
1974-75	39.6	24.1	36.1	99.8
1975-76	48.7	28.9	43.7	121.3
1976-77	41.9	20.0	40.3	111.2
1977-78	52.7	31.8	41.9	126.4
1978-79	53.8	35.5	42.6	131.9
1979-80	42.3	31.8	35.6	109.7
1980-81	53.2	36.3	40.4	129.9
1981-82	53.2	37.5	42.6	133.3
1982-83	46.5	42.5	39.4	128.4
1983-84	59.9	45.0	45.2	150.1

Wheat production in India has increased to almost seven times (from 6.5 million tonnes in 1950-51 to about 45.00 million tonnes in 1983-84). Rice production has almost tripled during the same period.

The compound growth rate of production of foodgrains during 1967-68 to 1983-84 is 2.58% per annum whereas the population growth rate has been at the rate of 2.24% per annum during the decade 1971-81. In the case of the two important cereals, wheat and rice, the growth rate have been 5.73 and 2.23% per annum. However, the growth rate of pulses in the country has been somewhat slow and this is engaging special attention.

An important element in ensuring this increase in production has been the operations of the Food Corporation of India. The Food Corporation of India, which is a Government agency, sees to it that the minimum support prices which the Government of India fixes on the recommendations of the agricultural Prices Commission for important cereals such as wheat and rice, are, in fact, acted upon by entering the different village markets (mandis) and purchasing the grain from these markets at the stipulated prices whenever the market rates fall below these levels. In these days, when the cost of agricultural inputs have risen and agricultural operations in the important producing areas are getting increasingly commercialised, the importance to the farmer of a "minimum support price" at which Government agencies buy up the grain is not often fully realized, particularly in the Third World countries.

Keeping in view the growth rates which have been achieved in the past, particularly in the case of the two important cereals, rice and wheat, the ambitious schemes drawn up for increasing the areas under irrigation and making available increasing quantities of agricultural inputs -- as well as improving the training and delivery systems -- it would not be too optimistic to assume a growth rate of about 4% in the case of wheat and slightly lower percentages in the case of rice and other crops. An idea about the projections in or around 2000 in the case of India, because I am talking in reference to that country, along with the growth rate and the present level of production would broadly be:

Crop	Base Level Production 1981-1984 (MT)	Annual Compound Growth Rate (%)	Projected Production by 2000 (MT)
Rice	59.37	2.31	84.36
Wheat	44.62	4.00	80.50
Coarse Cereals	33.76	2.00	45.14
Pulses	12.81	3.00	20.00
Total Food Grains	150.56	2.54	230.00

From this it will be seen that even if we continue to retain the growth rate of 2.6 % per annum, or even a slightly lower level, i.e., 2.54%, the country's total foodgrains production by 2000 is expected to be around 230 million tonnes.

An important aspect connected with meeting the food needs of the people, because in the developing world it is one thing to have the food but another to see that the people that need it get it -- whether it is within the country or in the international sphere -- is to ensure that there are proper delivery systems to ensure that the food is available and is distributed in time to those needing it. In India the public distribution system functions through a wide network of fair price shops, which aims at supplying foodgrains to the consumers, particularly the vulnerable section of the population, at reasonable prices. The quantity of foodgrains handled by the public distribution system during the past few years has been:

In 1980, 14.99 million tonnes; in 1981, 13.01; in 1982, 14.77 and in 1983, which was not a very good year 16.23 million tonnes.

An important fact to be borne in mind is that the public distribution system in India is only supplemental in nature and does not attempt to meet the entire requirements of the population. In other words, it does not disturb the normal operation of the market forces. In fact during the year 1982-83, only 13.26% of the total cereals produced in the country was procured for distribution through the public distribution system.

Also related to our food production are population projections because this has a bearing on how we enter the world grain trade market.

The population projections prepared by the Registrar General of India are categorised into three groups -- high, medium and low. High projections are based on the premise that the couple protection level 1/likely to be achieved by the end of March 1984, namely 28%, will not be exceeded in the remaining 16 years of the century. This is not a realistic or plausible assumption as we have already reached 29% couple protection, according to the figures made available to us. According to this high profile, the population in the year 2000 is expected to be a little over one billion, that is 1,052 million. The medium projections are based on the estimate that couple protected may increase at an average rate of 1.3% per annum and reach 48.8% by 2000. According to this, the population is expected to be around 991 million. This assumption also seems to be on the pessimistic side as there was an increase of 2.2% during the year 1982-83 compared to the previous year and the expectation is that it will be 3% during 1983-84.

Now keeping in view this percentage, it is expected that we could reach a couple protection level of 60% by the year 2000 and if that is reached, our population is expected to be in the order of 950 million.

1. Couple protection level - estimate of the percent of couples or families participating in temporary or permanent birth control or planning activities in India.

According to these broad assumptions, the per capita availability of foodgrains in India for a population of a little over 950 million at the turn of the century with an anticipated production of 225 to 230 million tonnes, should not be less than what is available now. However, with the expected rise in income particularly of those below the poverty line, the demand for foodgrains is likely to increase more than proportionately. This would be so because, in the case of India, it is one of the major objective of public policies to progressively reduce and ultimately eradicate poverty in rural areas. The particular categories of programs which have been taken up are briefly:

- a) Resource and income development programs for the rural poor such as Integrated Rural Development, Training of Rural Youth for Self-Employment, Development of Women and Children in Rural Areas;
- b) Work programs for creation of supplementary employment opportunities such as the National Rural Employment and the Rural Landless Employment Guarantee programs;
- c) Special area development programs such as the Drought-Prone Areas and the Desert Development programs;
- d) Setting up structures to enable successful transfer of technology such as the Council for Advancement of Rural Technology.

When you have enumerated these, and considered that with programs such as these and with more income being pumped into the rural areas, particularly for the poor, the demand for foodgrains by them is likely to increase. Moreover, purchasing power will be available because of the schemes to buy the grains which will be created.

It is expected that with these rural programs incomes in rural areas will go up fairly rapidly, thereby increasing the demand for foodgrains even more than proportionate to the increase in population -- particularly in the initial phase.

Against this background, while the per capita availability of foodgrains is expected to be better than the present position (about 150 million for a population of 710 million) the net surplus which the country will have at the turn of the century cannot be forecast with certainty. This is so because if the per capita demand for foodgrains remains at that level, India should have a surplus. However, the increase in demand for foodgrains, generated as a result of increases in income particularly amongst those who are below the poverty line now, which would take place as a result of the special measures designed by the Government to remove poverty particularly in rural areas cannot be assessed with certainty. Nevertheless, it is the expectation that the position of India vis-à-vis the world grain trade would not be materially different from what it is today, at the turn of the century.

India has not been a participant in a big way in the world grain trade. Considering the size of the country and her population, if per capita indicators are applied, India's participation would be very minimal. In fact, both in the case of import, where except in some years it has been below one percent, and in the case of export where it has been significantly below that, India's participation has been very very minimal in world grain trade.

It is expected that for the South Asia region as a whole, which shares with India more or less the same climate, the increase in production of important cereals would more or less keep pace with demand. In fact, some countries have achieved spectacular break-throughs in production in South Asia regions. And the expectation is that these countries also may change their status very significantly from the present position if rising standards of living bring about changes in dietary habits.

World trade in wheat and coarse grains for the 1983-84 season is forecast at 186 million tonnes which is more or less the same as the previous year. The FAO has estimated that grain imports of developing countries will decline, primarily reflecting a fall in the requirements of India and China. Shipments to other low income food deficit countries are likely to continue their upward trend, although for many of them imports would be continued to be curtailed by shortages of hard currencies and credit constraints.

World imports of wheat in 1983-84 are now forecast at 98 million tonnes, virtually the same as in previous years. However, a larger share of the total is expected to be utilized for animal feed as high maize prices have encouraged the use of low quality wheat. Here again, the forecast is that imports into Africa will increase sharply, reflecting rise in demand and poor crops in northern Africa and the deteriorating situation in many countries in the south Sahara region. Purchases of wheat by developed countries are forecast at 36 million tonnes, the same level as in 1982-83.

World trade in coarse grains is also expected to remain at last year's level of 88 million tonnes. Coarse grain imports into developing countries will be at 32 million tonnes and imports into Africa are expected to increase sharply.

Developing countries produce about 40% of the world's wheat, yet two thirds of the total world wheat imports are imported by the developing countries.

As a grain, wheat is the most important grain in world grain trade followed closely by coarse grains. Rice does not form a significant proportion of the world grain trade.

An interesting aspect which may have a bearing on future grain trade is the fluctuation in prices. Taking the most important grain, namely wheat, it can be seen that international prices fluctuated erratically during the last decade. As can be seen in the price trends for a U.S. No. 1 hard Winter variety, wheat prices suddenly doubled in 1973-74. It dropped during the period 1976-77 and 1977-78 and again rose in 1980-81 to about the same level as during 1973-74. It fell over the last two years to a little over US\$150/per tonne. The pattern of future trade of this commodity will be influenced by its price behaviour, particularly as low grade wheat is a substitute for coarse grains as animal feed.

Now, I come to the final point, that is the perspective at the turn of the century. As indicated earlier, India's share in the world foodgrains trade is not expected to change from the position prevailing now.

For the developing countries in South America, the position is also likely to remain stable unless their increasing balance of payment difficulties force them to reduce their level of imports.

The area which will require attention is the low income food-deficit countries on the African continent. Here, the problem likely to be encountered is increasing requirements of foodgrains. With rising expectations and without radical alteration of the terms of trade, liberalization of credit availability, and larger food aid, these countries may have to forego their increased requirements of food.

Because of the agro-economic conditions, steep increases in production of foodgrains which would allow countries in this region to attain near self-sufficiency, would appear to be a very difficult task. This is compounded by the fact that in most of these countries of this region, population control has not met with much success. The 1984 study of the World's Population, compiled by the U.N. Fund for Population Activities (UNFPA) says that, despite an overall slow-down at the global level, population of many developing countries continues to grow at high rates. This state of affairs is responsible for slow economic progress, reduced incomes, and diminishing quality of life, of many millions of people.

A particularly alarming feature of the report is that while there has been an overall decline in the pattern of average number of children born from 4.5 to 3.6 over the last ten to fifteen years, the decline in developing countries was only 5.5 to 4.1. Here again it has been mentioned that Africa as a whole has not experienced any decline. In fact, fertility has actually risen in some of these countries. The average number of children born to a woman in Africa is put at 6.43. This, coupled with the increase in life expectancy, makes the chances of a population boom in these countries a distinct possibility without proportionate increase in food production.

From the above analysis, it will be seen that the requirements of the low income food deficit countries of African continent will be a very important factor in determining the quantum of world food trade.

It is here because of their inability to pay for the quantum of food required by them that increasing and strengthening the Food Aid Convention assumes importance. At present, commitments under the Convention are of the order of 7.6 million tonnes. As per the target fixed by the World Food Conference of 1974, this level should be at least 10 million tonnes. As per the recommendations of the non-aligned countries meeting (NAM) held in New Delhi in March 1983, the level of food aid commitments should be progressively increased to 18.5 million tonnes of cereals in 1985. Keeping in view the increased requirements by the turn of the century, the contributions from donor countries will have to rise substantially if the requirements of the low income food deficit countries, particularly in Africa, are to be met.

Apart from this, there is an International Emergency Food Reserve. The U.N. General Assembly at its special session held in September 1975 recommended, inter alia, that pending the establishment of world foodgrains reserves as envisaged by the World Food Conference, developed and developing countries in a position to do so should earmark stocks and/or funds to be placed at the disposal of World Food Program as an emergency food reserve to strengthen the capacity of the Program to deal with crisis situations in developing countries. Keeping in view the requirements of the low income food deficit countries, it was recommended during NAM in Delhi in March 1983 that this reserve should be increased to two million tonnes by 1985, and also that the possibility of embodying it with a legally binding Convention should be explored.

I have highlighted the quantum of food aid and the quantum of the International Emergency Food reserve because these two would have a bearing on the world foodgrains trade around the year 2000 as it is from these two sources that the requirements of low income food deficit countries which are unable to pay for their requirements of foodgrains is expected to be met. These would, of course, be related to other facilities made available such as easier international credit for food imports and other related aspects of food management such as storage, etc. by international agencies like the IMF, World Bank and others.

The pattern of trade as between different grains would depend to an extent on their availability. At present, in the international grain trade, wheat and coarse grains have a dominant share. Rice does not form a significant part of the trade. As between wheat and coarse grains, wheat has a greater share than coarse grains. With the rising standards of living, more and more people could take to animal food in a larger measure. This is likely to increase the demand for animal food which is mostly met by coarse grains at present. If coarse grains are unable to meet this requirement, than low quality wheat could serve as a substitute for coarse grains.

Against this background, the picture of world grain trade which emerges is that while the import requirements of bigger countries in the developing world, like China and India, are expected to come down, the requirement of the South Asian Region is not expected to increase significantly. However, the lower requirement of the countries such as India and China, and those in the South Asia Region, is broadly expected to be offset by the increased requirements of the African countries. As a result of this, the level of world grain trade is expected to remain more or less at the present level, barring extraordinarily bad years when the requirements of countries like China and India may increase. The requirements of these countries being large, once they decide to import, the tonnage involved will be fairly substantial.

The position stated above is with reference to the developing countries. It does not take into account the increase or decrease in international grain trade which may be occasioned by the changing position in the developed countries. Concretely, the changing requirements of U.S.S.R. with particular reference to wheat and coarse grains, could make a significant impact on the international grain trade market. This has not been taken into account as this paper essentially deals with the food needs in the developing world. Thank you, Mr. Chairman.

MR. JOHN PAROTTE (Moderator): Thank you very much, Mr. Vijayasekharan, for having given us the benefit of India's experience in increasing its production and self-sufficiency. I am sure that India could serve as a magnificent example to many other developing countries.

And now can we turn to the next speaker. The next speaker on our program this afternoon is Mr. Jorge Cort. Mr. Cort is the President of the Bolsa de Cereales de Buenos Aires, and he will speak to us on world grain trade beyond 2000 from the perspective of a developing exporting country. Mr. Cort has had a distinguished career in his native country with a particular emphasis on agriculture and agricultural trade. From among the many executive positions that he has held, I would like to highlight the following: President of the Arbitral Chamber and Advisor of the Grain Exchange; President of the Grain Exchange; member of the Buenos Aires Stock Exchange; and President of the Argentine Soybean Association.

In addition to his many executive functions, Mr. Cort has represented his country at numerous international meetings and conferences dealing with agriculture and agricultural trade.

MR. JORGE CORT (President, The Bolsa de Cereales de Buenos Aires, Argentina): Thank you Mr. Chairman. Firstly, I would like to express my deep gratitude to the authorities of the Government of Canada, who have organized this outstanding event in order to celebrate the International wheat Council's 100th Session, for inviting me to take part in the speakers' panel and in the debate that will surely arise.

Undoubtedly, the subject is exciting and a real challenge for all those who participate in the Symposium, trying to find solutions to the achievement of the always-yearned-for world food security which will therefore, bring humanity greater welfare.

The institution I preside over, the Buenos Aires Grain Exchange, one of the first of this sort in the world -- whose 130th anniversary we have just celebrated -- is a non-profit institution. The aims of the Exchange are: to promote agricultural productions; to provide facilities so that the different sectors involved in grain marketing can carry out their operations under legal and safe conditions; and to promote the creation or adherence of institutions representing the different sectors involved in the agricultural activity. For more than 80 years it has operated a Grain Arbitration chamber, which determines daily prices, carries out grain analysis, studies the products and by-products derived from their primary manufacture and acts in the capacity of an arbitrator in cases of lawsuits raised as the result of the fulfilment of the purchase and sale contracts.

In the operations hall (trading floor) cash transactions are made and a futures market operates.

Among the numerous institutions representing all the grain sectors that are part of the Exchange, I could mention producers, seed breeders, the fertilizers manufacturing association, the agricultural extension groups, cooperative companies, grain storage companies, sales agents, miller and oil manufacturers and exporters. As an Argentine and president of this institution, and as one of its members for more than 40 years, I feel honoured to be able to participate and be able to speak at this important symposium, attended by qualified representatives of importing and exporting countries and of different international organizations.

Up to the present there have been numerous and lengthy negotiations aimed at improving the conditions prevailing in grain productions and trade -- especially during the last fifteen years. The results have been mainly negative for developing countries, even for traditional exporting countries like Argentina. It is true that some progress was reached regarding the commitments made in the Food Aid Convention, and in the production programs set up in countries with scarce development, but the purposes of satisfying the food security that the world population requires are far from being reached.

In order to achieve this goal, I consider that world community must share a sincere feeling of cooperation. This has been mentioned on many occasions but reluctantly offered when the moment comes to put it into practice. Indeed it will be necessary to apply humanitarian and economic principles in trade and production, setting aside possible advantages of a typical political nature. Moreover, this is a responsibility that should be taken on by every country and not exclusively by exporting ones.

Since 1873, Argentina has been exporting grain regularly, and in increasing quantities up to the end of the forties. Since then its production has been erratic, sometimes due to weather conditions but also because of a lack of incentives to produce. As an example, it would be appropriate to mention that during the last 20 years grain exports have been subject to the payment of export duties and this has a negative effect on the price the producer receives. Given its low production costs, competition in the foreign markets has been achieved due to very competitive prices, especially when the exportable surpluses are greater. This achievement is significant when one considers that the country's economic situation does not allow it to grant subsidies or to guarantee export credits. Even though competition based on lower prices could be deemed inadequate for an exporting country, on some occasions circumstances may force a country to adopt this strategy -- for example, when the resources necessary to maintain stocks are scarce and the country depends, to a large extent, on currencies supplied by its exports. This is Argentina's case, where agricultural exports represent about 55% of its foreign commercial income and at present, this income is extremely necessary to be able to service the country's foreign debt.

Grain production in Argentina has recovered during recent years, mainly due to the use of seed and crop practices that have permitted higher yield -- even though the sown area has not increased greatly. In 1983, production reached 40.5 million tonnes and for the current year, a similar figure is foreseen. This has allowed us to export the record figure of 23.7 million tonnes of grain during the year, but the total would be 28 million if vegetable oils and milling and oil by-products are included.

If we bear in mind the increases that have taken place during the last 15 years, and we take as reference the average corresponding to the following agricultural three-year periods 1966/67-1968/69 and 1981/82-1983/84, it can be observed that Argentina's production of wheat increased 85%, corn 27% and sorghum 422%. In the case of soybean -- of recent development -- the increases have been really surprising (18.163 %), this year's production being estimated at about 6 million tonnes.

My country has excellent conditions to produce and the above-mentioned increases have primarily been achieved due to the use of better seeds, since grain sowing is still extensive in nature, and irrigation and fertilizing are rarely used. As regards seeds, it is important to point out that during the last years, 44% of certified seeds have been used for the wheat crop and as far as corn, sorghum and soybean are concerned, 100% of the seeds have been of the controlled and hybrid type.

Therefore, it is quite easy to visualize Argentina's production potential and its remarkable competitive price possibilities in the market, particularly when one considers that the above-mentioned increases have taken place without special incentives for producers. On the contrary, and even today, wheat is subject to an 18% export duty and the remaining grain to a 25%. Besides, according to the technician's opinions, the genetic possibilities of increasing yield per hectare have not been exhausted. In addition, it is still possible to increase the area cultivated and there are excellent prospects to increase the use of fertilizers in grain production -- a practice which is in its early stages in Argentina.

I wish to take advantage of this opportunity to point out that the Government elected last October 30th is aware that the country's economic recovery depends to a large extent on exports of agricultural products -- and recently committed itself to support agricultural producers when it said that "the Government will no longer turn its back on farming". On that occasion important measures were announced and some of them are, at present, being enforced.

Among them I could mention the announcement of a support price for wheat in the next season. This will be adjusted when the grain is harvested due to the special inflationary conditions prevailing in our economy; the elimination of an import tax that was applied to certain fertilizers and the Value Added Tax (VAT) reduction from 18 percent to 5% accrued by said-products; it was also announced that producers will not have to stop sowing due to the lack of appropriate credits. Likewise, it should be noted that the same reduction in the VAT will apply to herbicides. At the same time, the Agriculture and Livestock Secretariat has set up a fertilizers sub-program devoted to increasing productivity. The program basically consists of supplying the producer in certain areas of the provinces with urea imported by the National Grain Board. The farmers who join the program must return 2.6 kgs of wheat for every kg of urea when the distance to port is 400 km, or 2.45 kgs if this distance is 200 km.

New loading facilities have been built by private companies on the Parana River, which significantly increased the area's shipment capacity, and there are new transfer facilities on the Rio de La Plata which will allow completion of the vessels' load up to 40-foot draft -- a benefit to both the country and the importer. Moreover, as regards storage, handling and shipment, the last stages have been reached in dealings with the World Bank which will allow Argentina to build 22-storage plants in the North of the country (an area which has experienced significant crop expansion); to improve railway transport access to ports; and to remodel the port of Bahia Blanca. This work could be started at the beginning of 1985, according to recent announcements, and is of particular importance since it would allow the export of about 17 million tonnes through this port only -- a really significant volume if it is compared with the record amount of 6 million tonnes exported last year.

The increases registered in production and exports of grain in Argentina and the measures taken by the new government allow us to trust that the challenge for the year 2000 will be successfully met by Argentina as an exporting country.

A recent survey carried out by the International Wheat Council Secretariat on the prospects for grain in the long term, grants the subject many interesting viewpoints, which as the Executive Secretary states, should be considered as a possibility rather than a forecast.

According to the above-mentioned survey, the world population would amount to 6.1 billion by the end of the century, and the annual demographic growth rate would decrease by 0.3% during the 1960/80 and 1980/2000 periods -- although less developed countries will not undergo significant differences. It has been estimated that world annual grain consumption will increase to 2.18 billion tonnes, a figure showing a far slower increase than that recorded during the last twenty years. As to world trade, the growth prospects can be considered far lower than those observed for the 1960/1980 period. The figure of 265 million tonnes foreseen for the end of the century represents a 27% increase compared to the 180% increase recorded between 1960 and 1980. In addition, it is also timely to point out that despite a very small decrease regarding the 1960/80 period, the annual increase rate of overall production in less developed countries still exceeds the demographic increase rate.

As I stated previously, Argentina can trust it will adequately meet the challenge of supply for the year 2000 in the corresponding proportions, and not wanting to become a spokesman of exporting countries, I believe the same applies to the entire group.

This subject mainly affects importing developing countries and amongst them, particularly those with lower resources, but the solution to the problems they have to cope with is shared responsibility of the world community, whose aim should be to help find the means leading to an adequate answer.

With this in mind, I would like to suggest some points that must be considered in order to improve international food security. Although some of them are not new, I will mention them for I consider that what has been done up to the present could be extended and analyzed in depth.

1. The lack of resources is one of the main subjects preventing many countries from covering their food deficits. The Food Aid Programs have only slightly met some of the needy countries' requirements and besides bilateral loans and donations, we must insist on an increase of the international financial fund's resources which will allow the recipient country to purchase from any exporting country, under better price and freight conditions.

2. When circumstances so require it, the infrastructure of ports should be improved, as should the handling and domestic transport of importing countries receiving this aid, in order to decrease the costs of the product to be delivered to their population. In this aspect, it will also be necessary to receive financial aid to make the corresponding investments.
3. In less developed countries there are certain areas which could be devoted to crops, bearing in mind the progress achieved with seeds, fertilizers and irrigation. Twenty years ago, I remember having been told that when the Wheat Agreement renewal was being discussed, the Chief Commissioner of the Canadian Wheat Board said that he would not be surprised if, in the near future, wheat could be sown on Mont Blanc, thanks to the great technical developments achieved in the field of genetics. And following this same line, I can mention that in Argentina with the help of these developments, wheat, corn, sorghum and sunflower are being sown in areas which, 15 years ago, were considered inadequate for these crops.
4. A thorough advisory scheme should be prepared in order to inform agriculturists about the appropriate handling of soils, including problems arising from erosion, either wind or water. The loss of fertility owing to bad soil handling, causes discouragement and often leads the farmer to put a crop aside.

Recently, a national conference was held in the Buenos Aires Grain Exchange, to deal with these subjects. The organizing institutions have requested the FAO to consider holding similar regional meetings, and have also stated they would submit to this organization the subjects dealt with and conclusions reached during the above-mentioned meeting.

5. Consideration should be given to the fact that Food Security could be helped by strengthening the development of non-grain crops and of other sources of food production, such as edible tubers or fishing.
6. The supply of raw materials and/or food should be fostered through the so-called countertrade which does not require or at least decreases the use of currency. A good example is the recent decision made by the Latin-American Integration Association (ALAI) when fostering this type of transaction among the countries to the Latin-American area.
7. The World Community and above all developed countries, should understand that the welfare of developing countries, whether grain exporters or importers, will be achieved sooner by helping the latter to market their products, instead of hindering them through the use of measures showing an exaggerated protectionist view.

To sum up, Mr. Chairman, I reiterate my gratitude for being able to be amongst you, this having given me the occasion to say something of what we can jointly do as regards world food security requirements.

I only need to add my fervent desire that the analysis of specific possibilities will tend to respond to the legitimate right of participation that in fairness belongs to all nations. This should not be a mere pattern of benefits or subsidies, nor even less of shaping a framework of interested assistance, but by the fulfillment of the moral duty to contribute to the creation of conditions under which each national community may achieve its own development.

The decisions regarding assistance must be a consequence of the assurance that developing countries require justice more than the granting of benefits; free access to markets more than unrewarding concessions; science and technology contributions prior to protection.

Because it is unjust to destroy richness or not to produce it so as to maintain situations of prosperity, and even more so to cast aside solidarity. Preservation of world peace requires, ever more so, that development be put at the service of all men so that co-operation be a means not only to give, but also of being prepared to receive.

God's mandate to dominate the earth and to put it at man's service is always enforced. It behooves us to assume the responsibility of carrying it out.

MR. JOHN PAROTTE (Moderator): Muchos gracias, Senor Cort. And now, I have great pleasure in introducing Sir Leslie Price who has kindly agreed to take part in this panel. Sir Leslie is well known to all of you and I am sure needs no introduction from me, except to say that he is currently the Chairman of the Australian Wheat Board in Melbourne. Sir Leslie, you have the floor. You have not prepared a paper but I am sure that the lack of preparation of a paper will add greatly to the quality of the remarks that you are going to give us. Thank you, Sir Leslie.

SIR LESLIE PRICE (Chairman of the Australian Wheat Board, Melbourne): Thank you very much, Mr. Parotte. I thank the organizers of this seminar for the invitation. I do not believe that it could have come at a better time in my life. To make predictions is an imperfect science, we all know. But why I say it comes at such a good time, having the year 2000 as the target, means that having a normal life expectancy and the way I live mine in particular, it is unlikely that I will be around to face the music when the time comes.

I think, since this morning, we would have to agree that most things about the world grain trade have already been said. We also agreed at our meeting at lunch time today that we would try to avoid duplication.

I believe that by the year 2000 and beyond, the grain trade will change. How much it will change, of course, is possibly the question that we are addressing. It will change in a number of ways, in my view. I think perhaps to explain these perceived changes, I would have to say that we will have to stop classifying markets and producers or exporters en bloc. In other words, I do not believe we will be able to have the luxury of simplifying it down to the point where we say developing countries or developed countries simply by using the economy as a measure. I believe that is using too broad a brush because there are going to be many changes in the importing and exporting patterns of those groups. So that being what it is, we are going to see some people who are now large importers become self-sufficient; we are going to see some who are now self-sufficient become importers. And so the pattern will change.

Thus, for the purpose of the few notes that I have written, I will put them into four categories.

Importers by necessity, that is if they depend on imports of food to give adequate sustenance to their population because they are unable to do so at the present time with their present level of technology and resources, so far as agriculture is concerned.

There will be the permanent importers, and I speak here of countries, not necessarily developing countries -- for example, Japan -- which do not have the agricultural potential to be able to feed their own people on a continuing basis.

Importers by choice, that is those who believe -- and at the present price of grain, I would think there would be quite a few of them -- they are the importers by choice, because they do have the capacity to feed themselves but believe that their resources are better directed towards doing something else (high-priced crops or something else altogether). They are really importers by choice and do have the capacity to feed themselves.

And then there are those that are virtually importers by default. Many believe that they do have the capacity to support themselves but simply cannot do it on a continuing basis, either because of variations in weather condition or climatic conditions, or that they have really yet not developed the technology to use their own resources to the fullest extent possible.

I believe in examining the trend of grain trade around the period that is mentioned here. We should also try to move away from the statisticians to some extent when it comes to the supply/demand situation. Supply and demand will never be in balance; there will always be either too much or not enough. And I think that has been proved over time. There are many examples of this where a country aims for self-sufficiency but never achieves it, except perhaps for one year, because then it either slips back or goes on to surplus. I think this trend will tend to continue.

I think the whole thing is more complex than perhaps we would like to believe. Those of us that have been in the grain trade for a lot of years have developed a certain level of cynicism because the situation that we now have, I have seen before -- I may not see it again but I am sure others will. In other words, I do not believe that we have learned very much from the mistakes of the past.

I think one of the points that came through to me this morning was that there seems to be something of a blind spot. We heard about the fifties, the sixties, the seventies, we even heard about the year 2000. What we did not hear about was the last five years, and we have made a mess of it frankly, in the last five years. Why do we avoid it? That is where the lessons are to be learned. We have done it again for the second time in my lifetime, or perhaps the third, but are we really going to learn anything from it? I wonder.

Each year, various farm policies and fiscal policies of both importing and exporting countries come up with new bright ideas. Nobody can be blamed for making mistakes. I always say, show me a man who has never made a mistake and I will show you a man who has never done anything. And I think that will remain true. But it is not really a matter of what will the grain trade be like after the year 2000. The real question is: What do we want it to be like? Because within the framework and the countries that have been gathered here for this week lies the control. What do you actually want it to be like? Now you possibly all have your own views as to what you would like it to be, and when I referred to the cynicism that I and others have developed over 30 odd years in the business, I refer to this: It is not terribly important how we would like it to be -- because fiscal and government policies or the government's fiscal policies, if you like to turn it around the other way -- are really what will dictate where the grain trade will go beyond the year 2000.

One of my colleagues at the table here said that he believes there will be little change, and perhaps he is right. We will be that much older but will we be that much wiser? I really think it is that to which we should face up.

Now I think we should also look at what we have. We have an International Wheat Council. Sure, it has failed to solve the problems of the world's supply/demand situation. But it is still a framework that gives us the opportunity, at least, to gather here and talk as we are talking now. I believe that is very important. We have the General Agreements on Tariffs and Trade (GATT) which, with all its imperfections, is better than none at all. We have the International Monetary Fund which, I believe, in the present marketing climate has at least to some extent abrogated its responsibility. It never has been, in my view, the role of wheat exporters to become bankers. I believe we have usurped their role, either that or they have abrogated their responsibility. Well beyond the year 2000, there will be a need for some countries to have financial support in order to maintain the standards of living and improve the standards of living of their populations.

And it is a world problem, not a wheat exporter's problem. I cannot lay too much emphasis on that. We have the World Bank that is doing, I believe, what it can in terms of aid projects and financing of long-term projects but it needs so much more.

And we have, as I say, possibly to some extent helped to distort the role that they should rightfully play. Perhaps the one that has meant most to more people, and possibly turned in one of the best performances, has been the Food Aid Convention (FAC) which is attached to our International Wheat Council. I believe all of us are proud of the way the FAC has developed and the way it has performed.

So what I would leave with you to do, is not to stand -- as I have done at least in part -- and criticize those organizations that I have mentioned that are already there, but to support and respect them, and I emphasize and underline "respect them". Do not try to pull them down. Try to build them up, and I believe in the absence of a better framework, we can make them do something to overcome the problems that we have in the grain trade and in the world economy in general.

I believe that there is a need also, and one that can help -- not in the advance in technology that we heard a lot about this morning and we must all agree it has been somewhat more than spectacular -- but I believe we have to get technology out to more people who fall into the category of those who could support themselves to a much greater extent. We must get that technology across to them. We must also get across to them the need to understand the market place. We have got to teach them what the future's market means to the world grain trade. How you operate and manipulate, if you like, the world freight that carries their wheat for distribution from one place to another. They also need to learn about the quality of the product they buy and sell.

There tends to be, in my experience, in gatherings such as this something of an attitude of "them and us" and it is not good. There should be no "them and us" concept. We exporters and we importers, represent a global sea of interdependence. Some produce food, some buy it, but it is necessary to both of us. I think we need to look at that. I believe it is what we call, or people in my office call, "a fish bowl effect".

There is a finite number of importers and exporters and they are both players in the market. What we must realize is that whatever anyone of us do in that fish bowl, it will affect all the others. If somebody muddies the water for themselves, they muddy it for all the rest of us. Thank you very much.

MR. JOHN PAROTTE (Moderator): Thank you very much, Sir Leslie. The time has now come to take question, and I am just wondering whether Mr. Bello Sule would like to join us now and answer questions that may be put to him on the situation in his own country, in Nigeria.

Mr. Bello Sule is at present the assistant general manager of the Nigerian Grain Board. He received his Bachelor of Science from the New Mexico State University and Master of Science from the University of Arizona. His responsibility is for operations which include all grain movement, storage and quality control in Nigeria.

Awaiting your questions, I would like to refer to the Food Aid Convention (FAC) which has been mentioned by several speakers. I am sure that all of you will be pleased to hear that at the meeting of the Food Aid Committee that took place yesterday, various indications were given which lead me to believe that food aid commitments in grain under the Convention will be in excess of 10 million tonnes next year. This will be for the first time ever, and this is to be welcomed. Mr. Vijayasekharan made reference to strengthening the Convention and he quoted various recommendations regarding a new target. I wonder if he is of the opinion that in the current circumstances, although those targets may be realistic, whether they could be achieved in the timeframe in which they have been set?

MR. T.U. VIJAYASEKHARAN (India): Mr. Chairman, with your permission. I have mentioned these targets in the context of the world grain trade, bearing in mind the requirements of various countries, particularly in Africa, which require grains but who cannot pay for it.

MR. JOHN PAROTTE (Moderator): Thank you, Mr. Vijayasekharan.

As a supplementary to this question, somebody is asking whether in a time of monetary constraints on all donors, it is realistic to talk of a 30% increase and will recipients really want this increase in food aid to the detriment of financial aid geared to production improvements? Or is it assumed that only those whose food aid is genuinely additional should make up the increase? Is there not some mileage in conversion of food aid into more effective production-oriented aid?

MR. T.U. VIJAYASEKHARAN (India): Well, Mr. Chairman, food comes first. Now if you do not have enough food assets to maintain normally healthy standards of life, then you are not in a position to utilize other aid. So first, it should be to feed the population which is required to be fed, whether they have the money to pay for it or not.

MR. JOHN PAROTTE (Moderator): Thank you.

The next question which has been asked, and perhaps it is directed to Professor Johnson, relates to the world implications of counter trade for future grain marketing and what would be the policy implications of counter trade.

DR. GALE JOHNSON (University of Chicago): Countertrade does seem to be a topic of increasing interest and attention. I must say I do not see it as being one that contributes certainly to the stability of prices in international markets. In fact, I would think it will have some adverse effects in that regard. Countertrade it seems to me, comes about in large part because of other forms of intervention in trade that prevent the formation of an active market in a variety of goods of varying quality. And it really means a reversion, to some extent, to barter which I assumed was one of the major accomplishments in modern economies over the past few centuries for us to reduce direct barter among individuals or groups, to a minimum. The basis of the advantages of the money economy, was the replacement of barter. Clearly there are difficulties in trading among countries today that have led to a rise in the interest and attention given to barter trade. I think it does present problems to a liberal trade order, but presumably there is some need for it or it would not have arisen to the extent that it has. Basically, I am unsympathetic to the growth of barter trade but I do not think it is something you should pass a law against.

MR. JOHN PAROTTE (Moderator): Thank you, Dr. Johnson. I have another question which is addressed to you and it refers to what Sir Leslie said when he spoke of working together to influence market.

Is there scope for benefits even if policies change only slowly, and are there potential gains from greater co-ordination of policies?

DR. GALE JOHNSON (University of Chicago): I would certainly think there are very substantial gains from co-ordination of policies. I would think that if the United States and the European Community, for example, would ever get together to co-ordinate and rationalize their dairy policies that this would amount to getting away from grain where most of the noise is about in one sense. There are, however, plenty of grounds for governments and the major trading companies to do more in co-ordinating their policies. We also need to understand better why each of us has the policies we have and to try to work out solutions that would be to the benefit of both sides, defining "both" very broadly to include both consumers as well as producers.

But, I would say also in the grain area that policy co-ordination certainly has merit. I would say that the existence of something like the International Wheat Council, which at least provides a basis in which communication and information can be transferred, makes a contribution in that direction. But there is far more, it seems to me, that can be done in the co-ordination of policies that will reduce the tensions that now exist in international trade.

MR. JOHN PAROTTE (Moderator): Thank you, Dr. Johnson. I have a question addressed to Mr. Bello Sule, and the question is:

What steps will be taken by Nigeria in the next five years to increase grain production?

MR. BELLO SULE (Nigeria): As everybody knows, Nigeria is a member of the OPEC and recently as a result of the recession, we have not been earning as much revenue from oil. So obviously our import bill has to be drastically reduced. Now because of this, the government is looking inwards. Nigeria, 40 years ago, was a basically agricultural country. It was exporting a number of agricultural products, basically ground nuts, cotton, palm oil and so forth. But when oil was found agriculture was neglected. Now that the oil level is no longer coming in, the Nigerian Government is paying more attention to agriculture.

The budgetary allocation to agriculture has been increased by about 15 percent, and some agricultural loans are being given. In addition foreign countries are being invited to come to Nigeria to participate and invest in agriculture.

So I think for the next decade or so, we are going to be looking inwards. We are going to be reducing our agricultural imports. We are going to be paying more emphasis to local grain productions. The prospects are there. Nigeria is a big country. There are a lot of resources and we are hopeful that within the next 30 years agricultural growth will increase.

Now this is nothing new, I mean India has done it before. India was an importer of food, now it is a net exporter. So we are very hopeful in Nigeria. The oil recession in fact is a blessing to us in the sense that it has taught us a lot of things, and we are very hopeful as a nation that agricultural production is going to increase.

MR. JOHN PAROTTE (Moderator): Thank you very much. I now have a question addressed to Mr. Catton.

What is your opinion of Section 16 of the GATT and of the concept of "fair share of the market"? According to certain sources the European Economic Community would have made agreements with some countries with respect to a limitation of its export tonnage. How do you feel about this approach especially since you do not seem, in your intervention, to take into consideration the rule of the GATT?

MR. BRUNO CATTON (France): I am not aware if everyone fully understands Section 16 of the GATT. There is much talk about this section. It is misused a lot and is given more meaning than it really has.

If my memory is correct, Section 16 states that every country which directly or indirectly gives subsidies for exports -- that is nearly every cereal exporting country, some giving less than others directly or indirectly -- must not take an unfair share of the market. I believe that this is the meaning of Section 16.

I would have to say on this point, that I do not believe that the European Community is taking at the present time an unfair share of the market. If it were, I would need an explanation as to what is unfair.

It was also said that the European Community voluntarily restricted its exports to a certain percentage of the world market. This is not an unfounded statement, it is the truth. For the past two years actually the Community restricted its exports to 14-15 percent -- I do not know the exact number -- in relation to the world market volume.

It was equally said that this resulted from pressure by the United States on the European Community. The question mentions certain countries and I believe we should not twist the facts around. I am not so sure that this is what really happened, because certain officials from the Department of Agriculture of the United States declare that this demand was never made, that it was merely an observation that was submitted to the European Community. I would say ultimately that I am not basically concerned with this debate and I wanted to stress in my paper the idea that the European Community sometimes resents having its established agricultural policy under constant attacks, a policy which was accepted during the Kennedy or the Dillon round -- I am not sure which. The principle of restitution and levy was accepted by the international community and, to my knowledge, there has been no change with respect to that question since then.

I think that the producers and the operators of the European Community do not have anything to learn from certain countries that are as much financially interventionist with their farmers, as was demonstrated by Dr. Johnson in his paper.

We must not forget that there still is in Europe 8% of the population active in agriculture, that there are 10% of unemployed and that in a crisis a European government would be totally foolish to speed up a process to diminish European prices in order to bring them close to world prices. This is, Mr. Parotte, the point I wanted to make.

MR. JOHN PAROTTE (Moderator): Thank you Mr. Catton. Now I have a question on food aid, again, and perhaps the food secretary of India and Mr. Bello Sule could field it. It is a question in two parts.

Could global food aid be significantly enlarged without displacing commercial trade that would otherwise take place? And this morning, it was suggested that new increments of food aid, if committed for longer term multi-year periods,

could be used as investments for Third World development. Also that this would expand trade, not displace existing trade. What do you think of this?

MR. T.U. VIJAYASEKHARAN (India): Food aid has to come from donor countries which are distinctly surplus. I do not know what is meant by the term "local food aid". I think that is one of the phrases used here, "local food aid".

MR. JOHN PAROTTE (Moderator): No, "global food aid".

MR. T.U. VIJAYASEKHARAN (India): Yes. Food aid. If we are to meet the genuine needs, food aid cannot be a substitute for trade, because aid by its very concept, will have to be given to those countries which are really deserving; deserving in the context that there is need for food and they do not have the ability to pay for the food. So these two criteria have to be satisfied and food is a first priority, because without food, you cannot take advantage of other forms of aid. So it is a question of proper assessment and impartial evaluation of the countries which require the aid.

MR. JOHN PAROTTE (Moderator): Thank you very much, Mr. Vijayasekharan. I wonder if Mr. Bello Sule would like to add some comments.

MR. BELLO SULE (Nigeria): Thank you, Mr. Parotte. I support what Mr. Vijayasekharan said, and the view of most of our governments in the Sub-Sahara Africa is that food aid invariably disrupts the food habits of most of these countries and discourages self-reliance. We look at it this way: the exporting countries can support a lot of these food deficit countries by increasing aid to agriculture in terms of technology, in terms of storage, in terms of agronomic practices, so that these countries can grow what they need and they can grow the cereals that they are used to. But food aid has a way of discouraging local production in the sense that either the food is free or the price is so low that it competes with the local cereals, and people have a tendency of course to buy something that is cheap and this will make the cereals grown locally to be rejected and the food habits of the people to tend towards more imported grains.

So instead of helping the country, food aid sometimes has a lot of detrimental effects by changing the food habits and making the country in fact more reliant on more aid. The more you give, the more they need. So I agree with my Indian counterpart that self-reliance is what these food-deficit countries need, and the best way to help them is by improving their own productivity, their storage facilities, new varieties of crops, and so forth.

MR. JOHN PAROTTE (Moderator): Thank you very much, Mr. Bello Sule. Now I have a question that is addressed to Dr. Johnson and Sir Leslie Price. The question is:

You spoke of liberalizing trade and referred to board's influence on trade. Is this creating trade distortions?

SIR LESLIE PRICE (Australia): Board's influences on trade? I do not think I mentioned board's influences on trade, we have none.

MR. JOHN PAROTTE (moderator): Well that is the answer. Now, Sir Leslie, another question that was asked of you was:

How long can farmers keep on producing wheat at downward prices?

SIR LESLIE PRICE (Australia): I think it very largely depends on how that price structure is made up. I think a couple of major players in international wheat trade pay -- present company and their house rules excepted of course -- that pay Argentina and Australia great compliments in that they find it necessary to go into all levels of support price to be able to compete with us, and I really wish we were that good.

Now we are still competing with that subsidy, and Argentina is one ahead of us because they are still competing with a 19% levy on their exports. So that is a fair amount of leeway given to anybody else. I think that in terms of world supply, adequate assured world supply, it is simply a matter of how much money is in the coffers of the governments that are prepared to subsidize their farmers. I would say, with reservations, that at the present time in the United States for instance, or for that matter in the EEC, they have long since passed the point of price that they could afford to efficiently produce if they did not. For that lower 60% -- there will be 40% above, that are still making money -- the bottom 60% would not be able to survive on today's world grain prices without pretty hefty government subvention.

MR. JOHN PAROTTE (Moderator): Thank you, Sir Leslie. I now have two questions to Mr. Catton, and they are related.

One questioner asked, and makes the point, that you have been partly advocating, Mr. Catton, a continued increase in EEC grain production. On the other hand, you have indicated the ever smaller part of grain in animal feeding. Can the EEC afford the financial burden of ever-increasing exports requiring ever-growing subsidies? And do you agree that the EEC is producing too much grain? Would it have been more efficient to reduce price sooner, possibly in the mid-seventies?

M. BRUNO CATTON (France): I did not advocate that the European Community increase its production of cereals. I stated that in accordance with its policy, the production of cereals would continue to increase within the Community.

In fact, there are at the present time less cereals used in animal consumption pro rata than before. But we must know -- and I do not have in mind the recent statistics -- that the animal consumption of cereals has greatly increased within the Community in the past 20 years for the simple reason that the consumption per person per year which in 1962 was approximately 52 kilos of meat increased to approximately 82 kilos of meat per person per year, in 1982, 20 years later. Therefore, considering the relative value, less cereals are used for animal feeding than before; considering the absolute value, greater quantities than before are now used.

The question of the cost of the cereals policy for the European Community must be regarded in the framework of the global cost of the general agricultural policy for the production as a whole. It so happens that during the past 12 years -- and this at the extremely steady rate -- that costs with respect to cereals represent approximately 6% of the total spending of the European Community. This is extremely reasonable, entirely bearable, considering the importance of cereal production in Europe, the number of people affected and also considering what the cereals contribute to the European Community and more particularly to certain countries in terms of commercial dealings.

On this point, I therefore think that no one in Europe believes that the quantity of cereals are too great or that the cost too much. It is interesting to note that in the animated debates that took place in Europe in the past 2 years (prior to the reform of the general agricultural policy) political voices have practically never raised any objection as to the cost of the cereals policy contrary to what happened with milk and a few other products for which there was no market especially for export.

I therefore believe that at the government levels and at the levels of public opinion the cereals policy is not a target for accusations in Europe and I do not see why the decision you mentioned to reduce prices should have been taken away. Actually, if you state the fact very carefully, we find that for approximately the last eight years, the price of cereals in Europe was increased at a slower rate than the cost of production. There was an acceleration this year, as a result of supplementary measures, but this is not a new phenomenon.

MR. JOHN PAROTTE (Moderator): Thank you, Mr. Catton. The last question, which is in two parts, is addressed to Dr. Johnson; since he was our theme speaker, it is perhaps why he should finish this question and answer session.

The main question is: Will the expected downward trend in grain prices affect the actual structure of world grain trade? And part b) of the question would be: Are there efficient ways to expand grain markets in developing countries in their own interests as well as in the interest of efficient local grain producers?

DR. GALE JOHNSON (University of Chicago): The downward trend in grain prices that I referred to, is an extension of the trend of long-standing, so that I do not see by itself that it is likely to bring about a significant change in the structure of world grain trade. I do want to emphasize that I assume the downward trend will be a modest one, somewhere at the rate of .3% to .5% per year after adjustment for the change in the general price level. I am not talking about a change of 10 to 20%. Though I did not indicate that in the shorter run, there is a possibility because of what I consider to be the excess of resources in grain production in several parts of the world, that unless there is some adjustment, we may have a very rapid recovery in the rest of the world, a rather serious situation with respect to grain prices for a short period of time.

With respect to the second part of the question, we have already seen, I would say, since the early 1970s--late 1960s, a significant increase in the role of developing countries in international grain trade. And this role has increased for a variety of reasons, some of them positive, some of them negative. The ones that I would count as negative are simply those cases where governmental policy has discriminated against farm people and in favour of urban people. This has had a negative effect upon local or domestic production, and has encouraged consumption through low prices. I do not count this kind of increase in trade as being particularly desirable from the standpoint of developing countries or something that the high income countries should encourage.

But where there have been rapid growths of income, we have clearly seen a sharp expansion and significant growth in imports. This is true certainly of such countries as Korea and Taiwan but it is also true of a number of others around the world where per capita incomes have grown at 3, 4, 5, and 6% a year. Part of that has gone for more food but increasingly it has gone to buy food for poultry and livestock. So, if we have significant rates of economic growth, I think we are going to continue to see the expansion of desirable trade with the developing countries.

MR. JOHN PAROTTE (Moderator): Thank you very much, Dr. Johnson. Well it is getting late and we do not have time to entertain any further question. I may perhaps briefly mention the themes that, to me, seem to have emerged from the discussions we had this afternoon.

SESSION II - SUMMARY

- Dr. Johnson spoke about prices. He is somewhat pessimistic on the growth in real prices of grain and thinks there is no basis to assume that the long-term slow downward trend in real grain prices will be interrupted in the next decade.
- With regard to the organization of international trade in grain of the turn of the century, Dr. Johnson made the point that grain exports are probably affected by about as many governmental interventions as imports.
- He sees little in recent history that indicated that the world of the market will be enlarged for grains in the next two or three decades.
- He concludes that the organization of the world grain trade at the turn of the century will likely be a continuation of present forms of governmental intervention.
- The only important incentive to change existing policies would be the government costs, which are and could be too high. Dr. Johnson is also pessimistic on the possibility of achieving an international agreement on grains.
- M. Catton stressed the emergence of the concept of food security and independence which was amplified by the introduction of the notion of food as a weapon and the great instability of prices and resulting growth in importance of monetary and credit issues. He referred to the purchasing power of many countries, their financial capacity and the two consequences of credit sales and barter agreements.
- With regard to the development of grain consumption for feed, he thinks this is one of the major elements involved in the growth of grain trade and consumption.
- M. Catton suggested that the share of imports by Eastern countries will drop by the year 2000. He also made another important point regarding the changes in export logistics and particularly the use of larger vessels.
- What were his conclusions regarding the outlook for trade in the next 20 years and beyond the year 2000? He thought that three facts would prevail:
 - a) that state intervention would remain active in the context of increased competition and tension between exporters;
 - b) that there would still be a high degree of instability, and the persisting problem of nutrition for a large part of the world population for whom the concept of food security may be unattainable;

c) in his view, the international community could not remain passive in the circumstances and had to act now.

- He thought that one way to act was through the establishment of a new agreement.
- The Food Secretary of India, Mr. Vijayasekharan, gave us some interesting indications about the way his country made use of the green revolution and the great progress that it achieved as a result of that green revolution.
- He does not think that his country's share of world food grain trade is expected to increase from the prevailing situation. The present trends in population growth may not fully absorb the expected production increases.
- He expected the African continent to remain a problem area because of increased lagging production, and inadequate purchasing power. the high population growth rate responsible for slow economic progress, reduced incomes and diminishing quality of life in many developing countries were, in his view, very important factors.
- Many developing countries require access to more liberalized credit and greater quantities of food aid.
- Finally, the Food Secretary expressed cautious optimism about the continued improvement of food consumption, production throughout the world.
- Mr. Cort, our distinguished visitor from Argentina, made the point that Argentina has been a consistent grain exporter since 1873 and since the 1940s exports have been erratic due to weather condition and lack of production incentives. However, production has recovered during the last few years.
- The new Argentine Government is committed to agriculture. Mr. Cort is confident that, as an exporter; it can meet its proportional share of increased production needed to satisfy expected world demand.
- The most affected countries by the year 2000 will be the importing developing countries.
- He quoted some points for consideration to improve the international food security, such as:
 - a) the increase in international financing to allow recipients to purchase from any exporting countries;
 - b) port infrastructure that should be improved in importing countries as should transport, storage and handling facilities;

- c) a greater utilization of available land resources for food production;
 - d) advisory schemes to provide information on proper handling of soils;
 - e) strengthening development of non-grain crops.
- In Mr. Cort's view the welfare of developing countries will only be achieved by assisting those countries in marketing their products instead of hindering them by protectionist practices.
 - Finally, we have Sir Leslie Price who saw some main changes by the year 2000 in import and export patterns, as countries become self-sufficient or as favourable import prices make grain purchases attractive compared to producing the grain of their own.
 - One sobering thought he had was that in the international grain trade, we do not seem to learn from our mistakes.
 - He felt that this would still hold true in the year 2000.
 - He also thinks that financing grain purchases will grow as a problem and that the only way for helping developing countries will be to give them technological assistance.

Ladies and gentlemen, this was a very brief summary of a very interesting discussion that we had had this afternoon. It has been wide ranging and I would like to take this opportunity of thanking the theme speaker, the panelists, also the rapporteurs for the help they have given me and again, many thanks to all of you on behalf of the participants in this session.

MR. W. MINER (Conference Chairman): Thank you, John Parotte, for your good work as moderator and for your summary.

SESSION III

Morning Session - Friday, June 29, 1984

MR. W. MINER (Chairman): ... I gather that the traffic this morning has created some difficulties. I am not certain whether it's construction in this case or the fact that there was a bear loose in this city somewhere and the police were trying to track it down. That shows you, how close we live to nature in this part of the world.

This morning, we are dealing with the future directions for policy.

We are very pleased indeed to have here as the moderator of this morning's session, someone whose experience puts him precisely in the proper position for a policy discussion. The Honourable Mitchell Sharp, is the Deputy Chairman for North America of the Trilateral Commission. He also has served Canada in many capacities, not only as a senior public servant in Departments such as Trade and Commerce but also in other capacities as well. He subsequently became well-known around the world as Minister of External Affairs and served as well in Finance, and in Trade and Commerce.

I should mention in this respect that in those duties, in Trade and Commerce particularly, the Honourable Mitchell Sharp was very much involved in grain policy questions, and indeed is one of the few Ministers, I think, that you would encounter who has had first-hand experience in grain negotiations and in the work of the Wheat Council itself.

I shouldn't neglect mentioning that he has had senior experience in the private sector as well. So, we welcome the Honourable Mitchell Sharp as moderator of the program and I'd like to turn the program over to him at this time.

SESSION III - THEME: FUTURE DIRECTIONS FOR POLICY

HON. MITCHELL SHARP (Moderator): Thank you, Mr. Miner. As Bill said, this is a nostalgic occasion for me. For a long period of my life, I was closely associated with the marketing of grain, first as an economist with a leading Canadian grain merchant, then as a government official and later as Minister of the crown responsible for the Canadian Wheat Board. I had the honour of leading Canadian delegations to international wheat conferences during the 1950's, working alongside Charlie Wilson who is here at this conference today and who contributed so much to the development of the ideas that still underlie international efforts to stabilize grain prices and markets.

In some ways, the world is very different now from what it was in those days. Production of grains and international trade in grains are very much greater than they were then. Back in the fifties and sixties, the Soviet Union and China were largely self-sufficient. Occasionally the Soviet Union exported some wheat. Today, they are the principal importers of grain, particularly wheat. I had the privilege of helping to negotiate some of the first big contracts between Canada and those two countries. But there are some similarities too. Then, as now, some parts of the world are short of food grains and cannot afford to pay for the imports they need. At the same time, exporting countries have recurrent problems in disposing of surpluses just as they had in the fifties and sixties.

Today, we are going to look at some of the policy implications, the theme of "Future Directions for Policy", and I hope that our discussion will address the concerns that we have today as we had at the time when I had more responsibility in this field.

We are very privileged to have as our first speaker, Dr. Emery Castle. He has a PhD from Iowa State University after undergraduate work and a Masters' degree from Kansas State University. He has been an agricultural economist with the Federal Reserve Bank of Kansas City, a professor and Dean of Faculty at Oregon State University and Director of the Water Resources Institute at Oregon State University. Between 1976 and 1979, he was Vice-President of Resources for the Future before becoming President in 1979. He is also a member of the Research Advisory Committee of the Agency for International Development. I have great pleasure in asking Dr. Castle to address us.

DR. EMERY CASTLE (President, Resources for the Future, Washington): Thank you very much, Mr. Sharp. I would like to say how pleased I am to be here and to complement the people who arranged for this symposium. I think the program, the facilities and the various events have just been first rate and the people are to be complimented for this. I have enjoyed it immensely.

Let me begin by quoting Winston Churchill who once said that "political ability is the ability to foretell what is going to happen tomorrow, next week, next month and next year, and to have the ability afterwards to explain why it didn't happen".

Now, despite Winston Churchill, I am not going to try to persuade you that I have a crystal ball that permits me to see around the bend of tomorrow. There is no shortage of forecasts of the future, the woods are full of them. The trouble is no one knows which forecast is correct. More forecasts are not needed, then, but rather if someone could offer a method for selecting the right forecasts, there would be a great market for that individual's services. So, I am not going to discuss future policies but rather future directions for policy, which is quite a different thing. That is, while no one could know with any degree of precision what responses will be made to future events, we can identify a few present trends that are broad enough and deep enough to affect those responses and even the events themselves.

I might pause here for just a moment, however, and refer to Session I and the two theme speakers who spoke yesterday. While I am basically in agreement with them, I was quite surprised that they were so much in agreement with one another. And that makes me nervous, because when the Hudson Institute and the Club of Rome begin to agree on something, I begin to wonder what is going on. Then when this is underpinned in the afternoon by the University of Chicago, I really begin to get nervous.

But for our purposes, the trends which I think are most important are three that are drawing nations together in a web of mutual dependence. The first of these is economic. Now this needs no elaboration, that you are meeting this week in your Centennial Forum is proof enough that nations long have recognized the advantages to be gained through international trade.

The second is political. I realize that some may question an assertion of political interdependence at a time when the cold war seems revived, savage wars and insurrections mark the globe, and international organizations appear powerless even to moderate conflicts. Obviously, we could hope for more pacific times, but my point here is simple: That is, nuclear means of destruction create political interdependence. No one may like living beneath a nuclear sword but the fact that we do forges in each superpower an unbreakable link to the other.

Now, the third trend stems from the unequal distribution of natural resources around the world, and the fact that we all share in common the life supporting services of the global environment. Natural resources and threats to environmental quality make us interdependent in a physical and a geographic sense as well.

My thesis is that future directions of policy will be conditioned in a broad and general way by these interdependencies -- economic, political

and environmental. But while each nation must deal with the same trends, each can be expected to approach them in the context of what they see as their own self-interest. This perceived self-interest must be recognized if we are to be realistic as we appraise the policy environment. Thus, we may agree with some self-interested policies and think them positive influences on world order. And we may see other perceptions as leading to counter-productive policies that must be changed if conditions are to improve. But regardless of what we think or of how nations interpret their self-interest, perceptions are reality and must be taken into account accordingly. In a sense, then, my remarks deal with how these realities of economic, political and physical interdependency get translated into national policies.

I turn first to food and agricultural policy and make a few brief comments on these in relation, to a certain extent, to the summary points of what has already been said in this conference.

National food and agricultural policies are so many and varied, they seem almost to defy description. Yet, they do reveal general tendencies and particular patterns. Perhaps key among them is that an efficient agriculture, or access to an efficient agriculture, is a precondition for economic development. Thus, a genuine basis exists for the attention that is given by development agencies and by the countries themselves to agriculture in the developing world. There is, however, far from consensus as to how to bring about an efficient agriculture there, as witnessed by the highly varied policies that are pursued. But three things seem clear from experience.

1. Those who live on the land and whose principal contribution is the production of food, do respond to economic incentives. Again and again, producers have reacted in a dramatic way to favorable price relationships. Despite this evidence, indeed flying in the face of it, many nations shackle their food systems with so-called cheap food policies that do not provide adequate incentives for producers. In the long run, cheap food for consumers, when transferred back to the farm, often becomes expensive food.
2. Investing in improving the means of agricultural production typically yields handsome returns. That investment in agricultural research and education has grown rapidly, indicates that this relationship has become widely recognized and accepted.
3. International trade is a way to gain access to more efficient agriculture than can be developed domestically. On an aggregate basis, trade does not account for a large percentage of world food needs, even though neither logic nor experience argues that a nation should be self-sufficient in food production. Even nations that have relied heavily on food trade, such as Great Britain and Japan, often still worry about food security and may pursue policies toward food independence.

As development occurs, a nation frequently develops an advantage in particular commodities. Whether a nation on balance is a net importer or a net exporter of food, probably should be a consequence of development policy rather than its objective.

Now to summarize this section and this experience, we may say that a developing country is well advised to improve the efficiency of its agriculture by social investment in the techniques of production and in people engaged in agriculture.

Further, producers will respond to favorable price relationship. Cheap food policies that do not recognize this will be counter-productive. Finally, international trade policies that focus on such issues as the balance of payments to the exclusion of providing access to efficient agricultural production, may well inhibit economic development.

Now, the fact that developing countries typically are plagued with food and agricultural problems does not by any means imply that the industrialized countries seem to be happy with their agricultural policies. For example, a good many of the more-or-less market-oriented economies provide substantial protection for their agriculture, which often has the effect of creating potential for excess production. Protection causes problems, whether the commodity in question is one that must be guarded from competition or one which the country wishes to trade internationally. It is difficult to increase domestic prices above market clearing levels without creating incentives that benefit producers in other countries, and the United States' Payment-in-Kind program provides an outstanding example.

The centrally planned economies have their problems as well, and both the Soviet Union and the People's Republic of China have experimented with different ways to increase agricultural production.

I now turn to natural resources adequacy. The current of inter-dependence created by the fact that all nations share a common natural environment deserves special attention. Do we need to be concerned about the adequacy of natural resources? To what extent should national policies be influenced by predicted shortages of natural resources and predictions of declining environmental quality? In my judgment, these are not phony issues. There is a genuine basis for concern about them but it often seems to me this concern is focused on the wrong problems and the wrong issues. Permit me now to be more specific.

What are the right problems? In my mind, some important global environmental problems rank first. Acid rain, carbon dioxide build-up and the loss of species and basic genetic material provide examples. I think that there is much literature that is highly exaggerated on these points. However, when one goes beneath some of these scare stories and really examines the fundamentals, I still am concerned about all three of these issues and perhaps some others as well.

There is a stirring of concern about these matters in the developing countries as well as among some of the more developed nations, centrally planned and marked-oriented alike. But the basic stand so far has been official neglect. A common concern for these problems offers a base for communication and co-operation, and at some point it may become apparent to all or at least most of the actors that international co-operation, not competition, is the proper avenue to address such issues.

Closely following in importance are some major problems of regional and local natural resource adequacy. For example, some areas now in food production and others being brought into production are incapable of sustaining present levels of use. Typically, access to these lands or resources either is open or only partially controlled. Such conditions usually arise because of human misery resulting from excess population relative to the natural resources available.

Conditions may get worse unless national policies are improved and property right reform occurs because, when poverty and hunger are widespread, resource conservation has a low priority. Thus, the solution to resource abuse usually will be forthcoming only after poverty and hunger have been addressed.

I would like to pause here for just a moment to say that I am in basic agreement with the previous theme speakers that, on the average, our capacity to improve conditions between now and the turn of the century is there. I think that we can improve conditions and probably will. But one issue, I think, has been neglected in this conference, and that is the extent to which there are differential rates of growth. I have no basis for disagreeing with what Gale Johnson said yesterday about the probable rates of growth in international trade, but what he emphasized and what others emphasized quite properly, was average rates for the globe as a whole, because that was the theme of the conference. But it does seem to me that if the rate of development varies among the nations and among regions, that that in itself can create problems. And I do think that this disparity in income and disparity in living conditions needs to be called to attention, and - in particular, as far as my comments at this point are concerned, I think the way natural resources are used under those conditions becomes a severe problem, not necessarily a global problem, but regional and local in nature.

Now what are the wrong problems? I do not intend to present an exhaustive list here, but the kind of thing I have in mind are worries about global adequacy of arable land and water for agricultural production. It is important that such questions be raised, discussed and investigated, but at least some of this anxiety is misplaced. There is much land capable of being used more intensively and water is abundant, though it is poorly distributed in time and place in many cases. The crucial issue is not the availability of these resources in a physical sense. Rather, it is the creation of proper incentives for their use.

I turn now to reconciling domestic policies and global interdependence. Successful management of the three inter-dependencies (economic, political and environmental) could pay an enormous premium to humankind. In fact, the premium may be greater than at any other time in history. Now despite this opportunity, the self-interest of nations often results in perceptions and policies based on perceptions that in the long run become counter-productive.

The thrust of my remaining remarks is based on the assumption that some national leaders recognize that true self-interest will be served only if these interdependencies are managed successfully.

Let me advance four propositions as a basis for public policy that will deal simultaneously with national self-interest and global inter-dependence, a public policy that is both realistic and idealistic.

1. Attempting to control trade in natural resource commodities, either through a cartel arrangement or unilateral action, may convey international political power, but if so, it is a power that is transitory at best. Take the most famous case since World War II -- the oil embargo imposed by the Organization of Petroleum Exporting Countries. This event had an enormous effect on the economies of the entire world and international relations were affected accordingly. But, as great as the disruption was, world production and consumption eventually adjusted. The economic and political advantages conferred on the exporting countries were neither absolute nor permanent. The power the cartel once enjoyed has been lost and it is doubtful that it can be regained.

Similarly, the countries that export non-fuel minerals, seem to be aware of their limited economic and political power, if only because the possibilities for substituting, recycling and stockpiling materials are so substantial. But perhaps of even greater importance is the realization that a market loss may never be regained or, if it is, only over much time and after considerable economic loss. Perhaps this is why there has been so much talk about resource wars but, thankfully, so little substance.

Grain, of course, has been employed as a tool of foreign policy, especially by the United States. But even a sympathetic evaluation of that experience would give it a barely passing grade. The reason is that many nations aspire to export grain and, while some are more efficient than others, the advantage they enjoy is not great. When a supply interruption occurs from any one nation, many others can fill the gap and, again, a market can be quickly lost but regained only with difficulty, if at all.

2. Economic self-sufficiency in food production is a luxury many developing nations can ill afford. Likewise, many industrialized countries are discovering that protecting their agriculture from international markets is exceedingly expensive.

The major point here is that domestic policies that attempt to establish food self-sufficiency and discourage trade tend to weaken a nation's capacity to feed its people. Nations cannot make policy in a vacuum -- if international trade is to play its potential, the effect of domestic policies needs to be taken into consideration. One of the major reasons international markets are so unstable is that many nations use them to bring domestic policies into a kind of balance or equilibrium. Thus domestic instability often has been exported, with its cost being borne by all who participate in international markets.

3. In the coming years, increasing pressure will be exerted on common property, or open access, resources. For reasons of law, tradition, policy, or because of technical obstacles, it may be difficult to assign private property rights to some natural and environmental resources, or even to develop appropriate management devices for them. For example, it is exceedingly difficult to assign enforceable property rights to the use of the environment's capacity to assimilate pollutants. These services, therefore, cannot be exchanged freely in the market-place and their allocation becomes a collective responsibility when overuse creates pollution or congestion. There are exceptions, of course, such as the recent development of institutional devices to permit the sale of pollution rights.

Now this complex of questions is the essence of the public policy issue involving the allocation of environmental resources. It becomes even more complex when we are dealing with more than one nation or multiple nations. We all know how difficult these questions are within a country, but what we now need is international co-operation on the ocean, the atmosphere, and in the management of non-commercial plant and animal species.

4. Increased interdependence -- of all kinds -- raises the price of hostility and is a force for peace. How can such a proposition be translated into proposals that might be attractive to those who formulate domestic policies? We tend to fear depending on others, but when mutual dependence exists, we have an attractive incentive for accommodation. Furthermore, the more complex the trading pattern among nations, the less likely it is to be disturbed by unilateral action or the actions of a small group. It seems to me, that it is in the enlightened self-interest of those nations with higher per capita incomes to help developing nations achieve their aspirations. This may result in greater competition in some arenas but global demand for all goods and services can be expected to increase.

It is true that this scenario probably means even more intense pressures on global environmental resources but I nevertheless favour greater economic development because it is the only means I see whereby the masses of the earth can improve their welfare.

My sense of the future direction of policy then is that we will make progress in overcoming the poverty and hunger and poor management of natural resources that still plague too many parts of the world. And in this quest, public policies that strengthen economic interdependence through international trade as well as other means will be an important tool.

Increased trade and economic development, at least as we know it, may worsen global environmental problems but the climate of peace and international stability that trade and prosperity create is much more favourable for solving these problems than is the current condition of tension and hostility. Food, after all, is the number one priority for hungry people, with all other goals relegated to a distant second or worse position. As Albert Einstein has put it: "An empty stomach is not a good political adviser".

Finally, given a fair share of wisdom and good luck, we can look forward to achieving all the goals I have mentioned. We can increase international trade in food and fibre, we can move towards the elimination of poverty, we can make the world safer and more stable place, and we can fill scores of millions of empty stomachs. We can do these things because, on a global basis, we have sufficient natural resources and human knowledge to produce much more food in the future than we do now. Studies that we have made of resources for the future indicate that the world has the potential to feed a growing population of 6.1 billion people moderately better by the year 2000 than it fed 4.3 billion in 1980. It is up to all of us to realize that potential. Thank you very much.

HON. MITCHELL SHARP (Moderator): Thank you very much, Dr. Castle. You have certainly fulfilled our expectations of defining some of the bigger issues and must also be commended for the courage with which you have expressed your conclusions and your very stimulating presentation.

Now, ladies and gentlemen, we move on to the panel. We have three distinguished contributors, and you'll notice from your program that the concluding panel will examine future directions of broad economic and grain related policies from the perspective of growers and users in developed and developing countries. The panel will consider policies to maintain and encourage the grain sector, including the scope for greater co-operation between governments in grain trade and food security matters.

The first of our panelists is Mr. M.E. Abel, who has had a very distinguished career. He also has a PhD in agricultural economics from the University of Minnesota, and did his undergraduate work in economics and agriculture at Cornell. He has been Deputy Assistant Secretary of Agriculture, for International Affairs, in the U.S. Department of Agriculture; a professor in international and agricultural economics at the University of Minnesota; a program

advisor for the Food Foundation in New Delhi; and Chairman of the Food Advisory Committee to the Office of Technology Assessment. At the present time, he is the President of the consulting firm, Abel, Daft & Early, specializing in such areas as agricultural commodity market analysis, agricultural policy, economic policy, and international trade and economic development. I call upon Dr. Abel.

DR. MARTIN ABEL (Consultant and Former Deputy Assistant Secretary, International Affairs, Washington): Thank you very much. The organizers of this symposium are to be congratulated for a timely and informative program, and I am very pleased to be able to participate.

My remarks are going to focus on three trends in the world grain economy. I think each is driven to a large extent by policy considerations. Two of them relate specifically to wheat, and one to grain in general. In the interest of time, I am merely going to summarize three sets of points.

The first point that I wish to deal with is that, in the case of wheat, there are powerful forces leading in the direction of producing wheat for yield rather than for protein. And I see three things that have gone on or are going on in the world that tend to lead us in this direction.

One is a change in baking technology that has reduced required protein levels in flour. That change has been adopted on a fairly widespread basis, and I think is irreversible.

The second is a trend that I see which relates to protein. The rapid growth in consumption and trade in wheat around the world has taken place in and with countries that do not demand very high protein in wheat, that will take high protein wheats but really don't want to pay much of a premium for the protein. This group of countries includes China, many developing countries, and even the Soviet Union.

The third is a factor which I think is influencing the protein issue is price support programs in countries like the United States and the European Community, where the benefits of the programs are geared to volume of output, and farmers have an incentive to increase yield and production. These programs do not distinguish very well in attempting to support prices and incomes among different classes of wheat or among various protein levels in wheat. Consequently, we have, in a few places in the world, policies that have put in place forces that are leading farmers to go for yield at the expense of protein. And I must say that the scientific community has responded very nicely in meeting the farmers' needs, producing the kind of wheat varieties that the farmers want, and this process will probably continue.

Now I don't see in terms of the first two trends that they are going to reverse themselves, at least during the rest of this century. One

could argue whether lowering grain price support levels might influence the incentive structure of yield versus protein. My own view is that I cannot envision prices going low enough, at least in the foreseeable future, to make any material difference on that score.

Some countries will continue to produce high protein wheats. Canada will, and we'll produce high protein wheats in the Northern Plains of the United States. The wheat that does get produced I think will be plenty adequate to meet the world demand. Last year in the United States, we had, for the 1983-84 marketing season, a very poor protein content in our hard red winter crop. Protein premiums on hard red winter wheat were not very high. They did not increase very much, and we got by very well by blending hard red spring wheats with our hard red winter wheats to produce in the flour the protein content that was required.

The second point that I want to make deals with pricing wheat as a feed grain. The world feeds livestock a considerable amount of wheat. In the Soviet Union for example, they routinely feed about a third of their 80 to 100 million tonnes of wheat that they produce. In the United States, last year, as a result of tight feed grain supplies and high corn prices, we fed nearly 13 million tonnes of wheat -- 92% above feeding levels in the previous year and representing about 16% of our total wheat usage.

In many parts of the world, wheat and coarse grains are grown on the same land. Farmers respond to relative prices in terms of which of the crops they are going to produce. If you get the wheat price out of line with the coarse grain price, you are going to create strong incentives to probably produce too much wheat at the expense of coarse grain production.

In the United States, for example, we have now gone through a complete cycle on this question of relative pricing. If I use, in the U.S. context, our price support level -- I'm talking about our loan rate -- in the 1955 to 1963 period, wheat support price averaged 52% above the support price for corn, our principal coarse grain or feed grain. In the 1964 through 1979 period, U.S. grain policies and supply/demand conditions changed and moved in a more market-oriented competitive pricing direction. During that period, the support level for wheat averaged only 20% above that for corn. For a variety of reasons, in the 1980-84 period the United States reverted back towards the situation it had in the fifties and the support price of wheat rose relative to corn and averaged 34% above the corn loan.

In the last year or so, adjustments have been made in the other direction.

I think this relative pricing question is important because if the price levels get too far out of line, they can present governments with

high costs and surpluses. These costs, as we have seen in the U.S. context, can become very substantial. I do not see in the U.S. and in the European Community, which has realigned its wheat and coarse grain prices over the last ten years or so, a trend towards a more realistic and probably more efficient pricing pattern in the support programs.

The third point I would like to make deals with adjusting grains prices worldwide. I think there is something quite interesting going on, something that economists had hoped for but didn't dare to expect to occur in previous years. I think we are getting a more realistic realignment of grain prices worldwide. I'll explain in a minute why I think that is so, and I think it has some very important implications for world grain trade.

On the one hand, given the economic and financial setting worldwide that countries must contend with, we are seeing -- for budget reasons -- in the United States and in Western Europe a downward adjustment in grain prices. Now certainly this is taking place in real terms, and we may have some adjustment actually in nominal prices. The cost in the current context of perpetuating the surpluses that have built in in the two regions that I have mentioned, are excessive. There is tremendous pressure to try to reduce those costs and, in the process, there will be tremendous pressure to try to get grain prices down. In some cases, the decline may be in real terms, in other cases, we may actually have nominal prices of grain declining.

Secondly, in a large number of developing countries and some centrally planned countries, we have had some very extreme distortions in internal grain prices. Countries have followed policies of subsidizing food prices to consumers. In most of those countries, in the process they have reduced -- artificially -- producer prices and reduced the incentive to produce their own grain or other crops.

Financial forces that are operating today are forcing many of these countries to re-evaluate their food and agricultural pricing policies, and changes are occurring. Food subsidies are being reduced. In some cases, it is an outright reduction. In other cases, the reduction takes the form of targeting the subsidy to those groups in society who really need the help but getting away from having the subsidies on a general basis. In the process, there is likely to be some improvement in producer prices.

As a consequence, there will be adjustments to this realignment of prices. There will be an incentive for many of these countries to produce more. The response, the production response, will vary greatly from country to country but in the aggregate I believe there will be a production response and there will be some consumption response as the prices that people pay for food increases.

I think that taken together, if these trends continue -- and I think they will because I think the pressure will force them to continue -- the net result will be a dampening effect on world trade. This is not to say that world trade in grain will not grow but the net effect of the price adjustment will cause world grain trade to grow more slowly than it would have grown in the absence of these changes.

Let me, then, conclude with the following comment. Projecting past trends has never really been a very reliable way of looking at the future but there were periods in time when we felt comfortable making such projections. The last few years has not been such a period. But I think as we look at the world grain economy, we have to go beyond the issue of trends. I think it is time to take a very hard and broad analytical look at the world grain economy and one that captures, in my mind, the important technological economic and policy interrelationships. We are dealing not only with aggregate volumes of output in trade but I think we are also going to be faced with changes in composition among commodities, among countries of world trade and world production. I think that simplistic views about where we are going in the world and what it means to exporters/to importers of grain will not fully capture some of the dynamic developments that I think are going to take place in the next decade. Thank you very much.

HON. MITCHELL SHARP (Moderator): Thank you very much, Mr. Abel. You have touched on some of the problems that I know have been concerning me, at some distance from having to make decisions about them, but your comments about the direction of policy in the various countries on the whole is really quite hopeful. If you stand away from it, as I do, you have an impression that things are not necessarily moving in that direction. I think your analysis is a very convincing one. Let's hope it's true.

Our next speaker on this panel is Mr. E.K. Turner, better known as Ted Turner. He was born and raised on a farm in Maymont, Saskatchewan, and is still a farmer. He is a graduate of the School of Agriculture at the University of Saskatchewan. He became a committee member of the Saskatchewan Wheat Pool in 1951, a delegate in 1957, a director in 1960. He became first Vice-President in 1966, and President of the Saskatchewan Wheat Pool in 1969, a position he has held ever since. Between 1969 and 1982, he was a member of the Advisory Committee to the Canadian Wheat Board, which I think I established -- I'm not sure but I remember deciding that it was desirable to have the views of some of the farm organizations and I see the institution has continued ever since. Ted Turner is a very distinguished member of it. He was an adviser to the Canadian Government during negotiations in Geneva towards an international wheat agreement in 1971 and again in 1978. I ask Mr. Turner to address us.

MR. E.K. TURNER (President, Saskatchewan Wheat Pool): Mr. Chairman, Mr. Moderator, fellow panelists, ladies and gentlemen. It is a

pleasure for me to have the opportunity to address this very important conference. I must say that a few months ago when I was asked to do so, I readily accepted the opportunity and it wasn't until I arrived here and saw the impressive list of speakers and also viewed the great capabilities represented in the audience that I became somewhat apprehensive about my role.

There is a story that is widely told about the early part of this century, about a great flood that swept down a densely populated valley destroying all before it and leaving one youth as a survivor. That youth became sought after as a speaker to relate this experience in the flood and this became almost a full-time occupation with him, and he turned from a survivor into an expert on floods. However, as will come to all of us, this young man became older and departed this world. And like some of us, he made it all the way to heaven and once established there, had an interview with Saint Peter. And Saint Peter asked him if he would like to relate his experiences on earth and particularly with the flood to a wider audience. He had told the story so many times that he readily accepted this. The hall was overflowing with a great number of people and he was being passed off as an expert on floods. Just before he was to take the podium, the chairman of the evening leaned over said: "I think it's only fair to warn you that Noah is in the audience!"

I feel that there are a great number of Noahs in this audience and I feel very much like a survivor in this instance. I would like to pick up on the theme that Sir Leslie Price talked a bit about yesterday, and that was his analogy of the fish bowl -- where what one does in the fish bowl affects all the others. Dr. Castle has just talked about mutual dependence, and certainly I subscribe to this thesis on interdependence. I would like to relate this from the perspective of a wheat producer in the Prairie Region of Canada. And the perspective that I would like to talk about is one of co-operation because it has long term historical roots in the foundation of our Prairie grain co-operatives.

This underlying philosophy that there is advantage and strength in co-operative effort, established these wheat pools and it applies as well at all levels. It is exemplified by the wheat pools at the producer level. But also, the International Wheat Council has that as a thesis to varying degrees in practices between the importing and exporting countries.

This symposium commemorates the 100th Session of the International Wheat Council. In Saskatchewan, we are celebrating a 60th anniversary, the 60th anniversary of the organization that I represent. We think it is significant because it in fact indicates the perseverance of this concept that producers, through joint effort, can shape their environment and have some influence on their fortunes. Individually, grain producers were powerless to address many of the wrongs that beset

their industry. It was only through co-operative effort that producers gained influence over the handling, shipping and marketing of their grain. Through that realization in the mid-twenties came the birth of the wheat pools. They grew from humble beginnings and were founded on not much more than producer commitment to deliver grain. They began without facilities, operating expertise, or financial backing. Today, they handle 65% of the Western grown grains. It was this same united action and appeal on the part of the producers that led to the establishment of the Canadian Wheat Board. Through this central marketing agency, prairie producers are assured the best possible returns for their production. The concept works well in Canada, and about 82% of all prairie grain is sold through the Canadian Wheat Board.

United action, co-operative action, has also shaped the Canadian grain industry and the environment of producers in other ways. Directly or indirectly, the action of producers has influenced freight rates, grain handling charges, the rail line network, and our regulatory environment and agencies, to name just a few.

I point to that review as evidence that co-operative action on the part of producers in Canada has worked to their advantage. I suggest also that, at times, strong co-operative action on the part of producers internationally has been of great benefit to them and, for that matter, to consumers as well.

We have traditionally maintained that producers and consumers of grain and especially wheat are best served by an effective and strong international agreement concerning price, supply and trading conditions. However, in reviewing history, it appears that strong and effective international wheat agreements have not always been the norm, despite a great deal of effort on the part of all those concerned.

As long ago as the late twenties, exporters discussed the establishment of an international wheat pool. In 1933, we had the first -- though short-lived -- international agreement in response to the request of many concerned organizations and countries for delivery quotas to discourage and regulate overproduction. In 1949, we had the first successful International Wheat Agreement which implemented minimum and maximum wheat prices and importer and exporter quotas. A succession of agreements followed, although so weakened that by 1971 there were no price provisions and only general pledges of maintaining some concept of orderly marketing. Since then, the International Wheat Agreements have not contained economic provisions and they have had limited impact on the world wheat trade.

But what else has happened since 1971? We've oscillated between times of massive surpluses and times of serious concern for world food supply. We have experienced periods during which prices were bid up beyond levels developing nations could afford to pay, and times of

devastating contraction of farm income in exporter countries. We have experienced embargoes, dumping of surplus stocks, and predatory competitive practices which have disrupted normal trade channels. In short, we have moved to an unstable environment which has frequently been to the detriment of producers or consumers or both.

In all fairness, one has to ask if it would have been possible to design an International Wheat Agreement that could have withstood the turbulence of the last 15 years. Could we have designed an agreement that would have accommodated the worldwide economy situations, and also the domestic policies of individual countries on agriculture, economic development and trade, which frequently tend to conflict at the international level?

We must come to realize that international co-operation on many problems, in addition to agriculture problems, is necessary if the concerns of farmers are to be met. For example, I find it difficult to believe that government leaders fully recognize the ramifications of some anti-inflationary policies. High interest rates, economic contraction, international monetary instability and unemployment have had a major impact on agriculture producers. When people are unemployed or their income falls, the consumption of farm products declines. In addition, countries have had their economic output shrink, leaving governments with less revenue and less able to fund farm programs. Internationally, we have experienced protectionist policies that disrupt trade, along with political rhetoric and threats of economic warfare that are disruptive and create further instability. Given the current state of affairs, there is no time like the present to speak in terms of meaningful co-operation at the international level to solve our world economic and agricultural problems.

Two questions come immediately to my mind when we speak of co-operative action. The first is, "What do producers expect to, or hope to, gain?" The second is, "Why should consumers give support to the producers' plight?"

First, producers need remunerative prices. It is obvious that the world's resources of land and people, materials and knowledge, are more than enough to feed the world community. I'm agreeing with many of the former speakers. However, these resources will not be fully utilized and the world will not be adequately fed unless producers in developing and developed countries alike, receive remunerative prices.

Frequently, producers are victims of domestic cheap food policies and receive less than adequate compensation for their capital, management and labour. Also, producers are frequently price takers when they sell their production but must bear the full effects of inflation on the purchase of necessary inputs. As well, the output of producers is determined by the variability of the weather. That risk factor alone has enough of an impact on farm income without adding to it inadequate prices.

Second, producers need some indication of market size and demand. There is no point in engaging in all-out production if the markets or the effective demand does not exist. The developing countries, which are major markets, are now facing huge problems with their external debt. High interest rates are affecting not only the servicing of that debt but also the ability of those countries to satisfy domestic food demand by way of imports. Solutions to the debt problem and expansion of effective demand in developing countries are especially fundamental if farmers are to utilize their productive capacity effectively.

Third, producers need stability in policies, especially at the international level. Exporter countries like Canada can become caught in the conflict between powerful countries which are in disagreement over trade policies and practices. In Canada, we are seeing a relative reduction in the level of subsidy that grain farmers will receive, and we stand to suffer greatly if competing countries step up their export programs.

Fourth, producers need to be relieved of the burden of being responsible for food security through maintenance of surplus stocks. That security should be at the cost of the governments of the world.

In response to these basic needs of producers, what would consumers of importing countries receive in return? First, they can expect an adequate supply of good quality food. They can expect the supply of that food at a more stable cost and at a cost which relates to general economic trends. Just as importantly, they can expect the right to participate in and influence food policy decisions. In addition, the world population stands to gain a better degree of food security, one which is not just a by-product of surplus accumulation.

Currently, importing countries can look to the short term benefits of a world food surplus. But I ask you, how long will it last? It could take only a year of adverse weather to change that apparent surplus to one of shortage and sharply rising prices. And what would producers gain? A period of short-lived prosperity lasting only so long as it takes farmers to over-produce in response to those better prices.

Farmers are not speculators. They are producers. Yet if the world continues to speculate with the needs of consumers and the livelihood of producers, it must expect the cycle of boom and bust with the resulting price and supply instability.

It is through international action on the part of both importers and exporters that we can address national concerns of rural preservation and farm income. We can address the quandary of how to adequately pay producers around the world for their efforts while ensuring that the price of the food does not rise beyond the means of much of the world's population. We can better address our responsibilities for food aid

and development assistance to needy nations, a responsibility that both exporter and wealthy importer nations must share.

In conclusion, we urge that world governments begin the international co-operation and development of multilateral solutions that will ensure price and income stability for producers and thus ensure security of supply for consumers. Thank you.

HON. MITCHELL SHARP (Moderator): Thank you very much, Mr. Turner. Your remarks brought back all my experiences in dealing with the grain trade, particularly with trade and with the co-operative movement in Canada. It is a familiar story and one that I think we all must take very seriously. The problem of instability in grain production and grain prices is one of the central problems that face us here. We've heard a very eloquent statement of how it appears from the point of view of the producer. I am very grateful to you, Mr. Turner, for being with us.

Our next speaker on the panel is Mr. Ruy Nogueira. He is a graduate of the Brazilian Diplomatic Academy, entered the diplomatic service in 1964, rising to the position of First Secretary with postings in Santa Domingo, Rome and Paris. Between foreign postings, he spent four years on leave from the diplomatic service to work for a large Brazilian coffee export company. In addition to his foreign service experience, he has worked with Ministers of Planning and of Agriculture and is at the present time Economic Advisor in the Ministry of Planning. He is also currently a member of the Brazilian Wheat Board, a position he has held since 1979 and which he held previously between 1966 and 1971. He has been a member of many Brazilian delegations to multilateral negotiations such as the Conference on the International Grains Arrangement in 1967, the UNCTAD negotiating conference on cocoa in 1972, and numerous delegations negotiating bilateral wheat agreements for Brazil. I have the pleasure of introducing Dr. Nogueira.

MR. RUY NOGUEIRA (Economic Advisor, Ministry of Planning, Brazil): Thank you, Mr. Chairman. Mr. Chairman, ladies and gentlemen, it is with great pleasure that I address this meeting in order to discuss future directions for policy from a developing country perspective.

As you are probably aware, Brazil's commitment to international wheat trade is a long established feature and even before the Second World War Brazil ranked fourth among wheat importing nations. Since then, and despite the increase of domestic production and the dramatic changes which have occurred in the universe of importers, the International Wheat Council's latest estimates put Brazil as the fifth largest importing country in 1983-84.

Meanwhile, the agriculture sector in Brazil has shown a steady growth and even in the grain sector, the production figures were doubled from the 16.8 million tonnes average in 1961-65 to 33 million in 1983. In

other areas, the increase was much more impressive and if we take the case of soybeans, production figures soared from 323 thousand tonnes in 1963 to 15.2 million tonnes in 1983. Due to this fact, Brazil was able to increase significantly its agricultural exports, which exceeded US\$8 billion in 1983, with soybeans alone representing \$2.5 billion.

Notwithstanding this fact, the development of the agricultural sector in Brazil, which has been a governmental priority for a number of years, showed important distortions stemming from excessively favourable credit terms and subsidized interest rates. These factors in turn resulted in a very large increase in government expenditures, thus aggravating the public deficit. According to some sources, the amount of subsidies for the agricultural sector in 1980 can be reckoned at US\$4 billion, if we include the consumer subsidy for wheat which reached its peak in that particular year.

For the reasons described, since the beginning of the decade, the Brazilian government pursues a policy of gradually eliminating subsidies that previously permeated all the agricultural sector and which, surprisingly enough, continues to expand -- a fact which in part can be attributed to satisfactory weather conditions in the last twelve months. In comparison to last year's crop, Brazil showed this year an increase in the production of thirteen food products and a reduction in only three, wheat being one of them.

Over the last ten years, wheat consumption has shown a marked increase in Brazil, a fact that can be explained by some improvement in the standards of living of urban populations, but also by the very large consumer subsidy which was introduced in 1972. In the wake of the dramatic increase of international prices in that year, the Brazilian government was forced to take measures in order to preserve the domestic consumer from the vagaries of the international market, a decision which presented some political justification but which brought about some far-reaching economic consequences.

To give you an idea of the extent of the phenomenon, Brazilian wheat consumption increased from 3.3 million tonnes in 1972 to 6.8 million tonnes in 1980, and in the same period, imports increased from 2.7 million to 4.6 million tonnes. In 1980, the consumer subsidy represented 85% of the cost of a tonne of wheat sold to millers. And government expenditure reached the all-time record figure of US\$1 billion.

Since then, some progress has been achieved in the implementation of a policy aimed at gradually phasing out the subsidy. During the 1980-84 period, the price of one tonne of wheat sold to millers was increased in real terms by 340% but due to the inflationary impact of such measures, the deadline of June 30, 1984 previously set up for the complete elimination of the subsidy had to be postponed to the end of this calendar year.

It is interesting to note that, in spite of this policy, Brazilian wheat consumption declined only 11.5% from the 6.8 million tonnes in 1980 to the 6.1 million estimated figure for 1984. And, due to reduced domestic crops, imports were down less than 3% from 4.6 million tonnes in 1980 to the 4.5 million figure estimated for this year.

Mr. Chairman, this is a very important point because in the course of the adjustment process that the Brazilian economy is now undergoing some trends seem to emerge, and I would think that some of them will have a bearing on Brazil's stance in international wheat markets.

In spite of balance of payment considerations, always present in countries with a large external debt, it seems no longer likely that Brazil will pursue a policy of increasing, at any cost, its domestic wheat production -- which most probably will be stabilized at the 2 to 3 million tonnes range. Experience has shown that increasing the acreage immoderately in the traditional producing areas has the effect of bringing into production areas which are not suitable for the crop, with a consequent increase of government disbursements under Brazil's crop insurance programs. Some small acreage increases are to be expected in the central part of the country, but since irrigation is required in that area, there are limits to such expansion. Nowadays, the price for domestically produced wheat is US\$225/tonne, a figure which is roughly 10% above the cost of a tonne of imported wheat delivered at the door of the mill. Everything tends to indicate that this level of protection is not likely to be increased in future years due to the continuing need to decrease government expenditure.

So it can be foreseen that Brazil, by making use of its comparative advantages, will expand its output of agricultural products such as coffee, cocoa, soybeans, sugar cane and cotton, but will continue to be a significant wheat importer. Thus, it will be of great importance for countries like Brazil, which tend to pursue trade-oriented food policies, that a greater degree of price stability be achieved in international wheat markets.

For the last ten years, Mr. Chairman, real prices have reached levels which represent both highs and lows that are without parallel since World War I. The disruptive effect of this fact have been extensively described and its importance is a stress when one considers the fact that about 50% of the wheat traded internationally is imported by developing nations.

To secure an orderly expansion for the production and trade of this very important commodity it seems advisable that national policies should move in the same direction and, as pointed out by other speakers, some kind of co-ordination at an international level should be sought in order to prevent excessive variations both in the volume produced and in the price at which wheat is traded.

I am fully aware that changes in production patterns are now much more difficult to introduce than at any other moment in recent history. In times of global economic crisis, it is only natural that governments would hesitate to embark on policies which would entail a temporary decrease of the income of the farm sector. But, in the interest of both the exporting and the importing countries, something must be done about it since the situation of oversupply we are facing now brings with it the prospect of future scarcity if international prices of wheat continue to slacken.

For countries like Brazil, the possibility of supplementing domestic food production through wheat imports made at fair and reasonable price is a very important target since it allows an improvement in the protein content of the diet of millions of people living in Brazilian cities. For this policy to succeed, it would be necessary that more consultation between exporting and importing nations take place in the near future because the tensions which have been accumulating in international wheat markets appear to be reaching a dangerous point. Let us hope that the ensuing debate can bring some light to this very vital issue. Thank you, Mr. Chairman.

HON. MITCHELL SHARP (Moderator): Thank you very much, Mr. Nogueira, for your contribution. Brazil has been very much in everyone's mind, particularly those of the banks. It was interesting to hear from you of the approach that is being made in Brazil to deal with one of the fundamental problems, mainly food, and to hear your very balanced presentation of what is going on. We are very grateful to you, Sir.

If you have questions, I will put them to the members of the panel.

Now, we have also on our panel this morning a very distinguished man who has a very important position. Mr. James Charles Ingram, whom I knew when he was the Australian High Commissioner to Canada, is the Executive Director of the World Food Program. He has served the Government of Australia in a number of high positions, including the one that he served in such a distinguished way here. His purpose in being on the panel is to answer questions on food aid, but if you would like to make some comments, I'm sure they would be very welcome. Mr. Ingram.

MR. JAMES INGRAM (Executive Director, World Food Program): Thank you indeed. Mr. Chairman, ladies and gentlemen. I don't intend to give any kind of dissertation but simply to express a few reflections as a result of listening to the various interventions in this extremely interesting and worthwhile symposium. And of course the subject of food aid was referred to in passing reasonably frequently, not so much in the actual addresses that were made but in terms of some of the questions that were asked.

I would like to simply say something about what I regard as the three challenges facing us in regard to food aid.

The first of these challenges relates to the need to ensure that food aid is not a production disincentive. Now, obviously in a few moments, I cannot say very much on what is a very complex subject, but perhaps I can illustrate a point by referring to something that Dr. James said in his very interesting statement yesterday. One of his slides showed the graph for the production of wheat in Bangladesh -- I don't remember the exact figures -- something like seven to ten years ago minimal production, less than 100 thousand tonnes a year. It showed current production of over a million tonnes a year. During that whole period, there was a substantial flow of food aid, and in particular wheat, into Bangladesh. So, we have a situation where food aid has been flowing in, mainly wheat, but at the same time production has been increasing dramatically.

Now, I would just like to say that the Bangladesh Minister of Food has said several times publicly that the success of that wheat production policy in his country is not simply due to technology -- that is to say the creation of the dwarf varieties which are suitable for a country with the climate of Pakistan and can be fitted into the crop rotation system that they have -- but is also due to the fact that because of the change of taste brought about by food aid, i.e., food aid in the form of wheat, the foundation has been laid for public acceptance of wheat as a contribution to the Bangladesh diet. He is absolutely categorical that it would not have been possible to have achieved this rapid increase in production if it had not been paralleled by a substantial food aid program. I give that as one concrete example to indicate that even this very question of changing tastes is not really as simple as it seems.

Yet, the challenge is to ensure that it is not a production disincentive. I think we have also to revert to the experience of India which was very heavily dependent upon food aid, and where production was not keeping pace with population growth, a situation that is now being transformed. In other words, the link between food aid and increasing agricultural production is not a simple one and there is no necessary reason why food aid should in fact be a disincentive to agricultural production. It depends, of course, upon how it is used, and that's the critical point.

WFP itself handles about one quarter of all food aid, and it uses that food aid basically in forms such as food for work, where the food is part payment of the whole payment of wages done by labourers, usually the very poorest people, on works which address themselves directly to the causes of their poverty. So everything depends upon the way it is used. I would like to say that enormous experience has been obtained during the last 30 years of the use of food aid, and I don't think one should feel in any way downcast at the continuing use of food aid for development.

The second challenge that I discern is to ensure that food aid is seen absolutely positively as an incentive for the adoption of good policies by the countries being assisted. Again many interventions have made clear what is in fact now an accepted truth, that the production problem in developing countries cannot be solved unless correct policies are followed, not only in relation to the food sector itself but general macro-economic policies, exchange rate policies, taxation policies, and so on.

Food aid remains a very important part of total development assistance and it is important that food aid should find its place in the policy dialogue that is now going on increasingly with developing countries on this issue of appropriate policies. I would like to say that WFP is playing its part in ensuring that such a policy dialogue does take place and that the use of food aid finds its proper part therein.

Indeed we have already on the books a number of projects which act as positive incentives to governments to pursue correct pricing policies. You are all very familiar, and it has been referred to several times by speakers, with the cheap food policy for city dwellers that occurs in very many countries and which, in some ways, is one of the basic causes of the production problem those countries face. This is a politically very difficult subject to deal with, and it's not one that can be dealt with dramatically or quickly. But with the proper utilization of buffer stocks funded from food aid, it's possible to bring about a smooth transition from a situation of too low prices for producers to one where they receive remunerative prices. When one uses this scheme, there is, at the same time, only a very gradual change -- an upward change -- in the price paid by urban consumers. WFP has a number of projects in this regard and we expect to have more.

Now, the third challenge -- in some ways I think it's almost the most important challenge -- is the need to ensure that our response, our food aid response, to disaster situations is fully compatible with those first two objectives that I've described.

I've just come from a very interesting seminar in Sweden, which was convened by the Swedish Red Cross, on this very subject. The fact is that too often what we describe as natural disasters are not really natural disasters at all. In a sense fluctuations in rainfall are a norm in all countries. But when you have changes in the environment, particularly as happened so dramatically in many countries of Africa, south of the Sahara, those normal fluctuations in climate -- or in weather I should say -- lead to excessively sharp changes in food production. What has happened so often in these countries is that the land has become degraded due to pressure of population. At the same time the correct pricing policies may not be in operation to serve as an incentive to farmers. There may have been too great a focus on export crops rather than food crops, and so on. We have a situation in many parts of the world today where in effect so-called natural disaster follows natural disaster, instead of being an abnormal event, they are becoming the norm.

Now, if our food aid response to these disasters does not find its place within a framework of policy designed to ensure that environmental causes are corrected or addressed -- and the policy requirements are also addressed -- the demands on us for emergency, so-called emergency food aid in many natural disaster situations will go on multiplying. Indeed the more we respond, perhaps the harder we make it for governments to take some of the hard decisions required. Of course it's a matter of finding a balance between the need for a humanitarian response, which is prompt and effective, and the need at the same time to ensure that what we do does not undermine our attempts to encourage domestic food production.

Having said all this, I would just like to say that the objective remains and must be pursued with great vigour to phase out food aid as soon as we possibly can. But of course it's not different in this respect from all forms of aid; the aim is precisely the same in relation to all. Food aid has this particular link, however, with food production in developing countries. And I must say that I share fully the view that has been expressed particularly by Drs. King and Martel that we need not be pessimistic about the possibility of reaching a situation in which developing countries can basically provide for their own food needs. On the other hand, I would have to say that, while in many respects in the overall sense it is not a problem of technology, I don't think we should underestimate the need to continue to make a very vigorous effort to come up with the technological solutions that are going to continue to be required. And if I may put in a plug for another group, I'd say it's very important that the wheat or the grain industries support international efforts to stimulate scientific research directly connected with food production problems in developing countries.

But then over and above the right technology, there is the problem of disseminating that technology, and that in itself is a manner of task. So, although I think we have the tools at hand, we certainly can't be complacent.

Mr. Chairman, listening yesterday to Dr. Johnson, who gave us I thought a very telling analysis of the outlook in particular for wheat in the year 2000, it seemed to me to be a very pessimistic analysis, and from my perspective that is rather important. We want to phase food aid out. But, food aid is also a function not only of its necessity at this stage of many developing countries, but there is a push towards the use of food aid by virtue of the... perhaps if I can use the word -- the somewhat "unstructured" market situation that exists in relation to a number of cereals. Now, if I've retained an important impression of this symposium, it would be that that push which arises from a somewhat unstructured market, seems likely to continue. And that I think is, from my perspective, not as obviously beneficial as it might seem because we want to see food aid phased out as quickly as possible. It is necessary now and it will remain necessary for many years, but

one would not like to see it continuing simply because the nations of the world have been unable to agree on ways of effectively structuring the grain market.

But, Mr. Chairman -- and this my final thought -- thinking again about this whole symposium and specifically relating it to that last point, whatever the outcome, certainly until the year 2000 we are going to need the Food Aid Convention. The Food Aid Convention is in fact the foundation of all food aid, including that supplied through the World Food Program. And I offer that, Mr. Chairman, as my final thought on what I've listened to in this extremely interesting and worthwhile symposium. Thank you.

HON. MITCHELL SHARP (Moderator): Thank you very much, Mr. Ingram.

I have received a number of questions which I will put, but I am going to take the prerogative of the Chair to ask a question of my own. and it is a question to Dr. Castle.

In his presentation, of which I happened to have a copy so that I could follow it very carefully, Dr. Castle made this comment. He was talking about attempts to control trade in natural resource commodities, either through a cartel arrangement or unilateral action. He took a rather dim view of these attempts. The question I would like to put to him is this:

To some extent, international commodity arrangements are a form of a cartel, and certainly with respect to wheat, the reason that International Wheat Agreements worked at all when they were in force was because the principal exporting countries did what they could to see that the agreement did operate. It was co-operation between Canada, the United States, and Australia, that was the centre of the agreement and that did provide the stability that existed for some time. Similarly, in coffee, it really was Brazil that gave the stability to the coffee market. When the International Coffee Agreement was operated well, it was the country that took up the slack, and so on. And thus I ask you, Dr. Castle, are you in your comments about cartel arrangements really commenting on international commodity agreements as well?

DR. EMERY CASTLE (Washington): I appreciate the question and I think it's an excellent question. I believe that international agreements whether you call them "cartels" or whether some other arrangements, may be able to accomplish certain things in terms of stability. But I believe that if they attempt to significantly increase the price above that which would exist over time in the absence of the arrangement, the incentive is created immediately for production outside of the cartel

or outside of the arrangement. And taking an intermediate to long-run view, I think efforts to extract that kind of return in almost all of the natural resource commodities that we have studies seem to me not likely to succeed in the longer-run setting. But I think that co-operative agreements can very well tend to stabilize and, to that extent, be beneficial.

HON. MITCHELL SHARP (Moderator): Thank you. Now, I will put some of the questions that I have received from the floor. To Mr. Abel:

Would you explain your last statement about dynamic developments in the world grain production and the changes you foresee in the next decade?

MR. MARTIN ABEL (Washington): There are several dimensions to it. First of all, with regards to the adjustments that I was talking about, one has to think in terms of where will they take place and at what rate. Some countries will do well in the adjustment process, because their own domestic production can increase quite rapidly. I think rice production in Sri Lanka is a case in point in response to changing rice price policies.

There are other countries where the basic infrastructure is so poorly developed, where the climate and soils are not very favourable, where the human resources and the research capability is not yet very favourable, that for the foreseeable future the response may be very short, very small. So, I think we are going to see differential rates of response all over the place.

The next question is, what kind of response do we get in terms of commodities? That too, is rooted in individual country situations. In some cases, it may be rice. In some cases it may be coarse grains. In other cases it may be cassava and a variety of other crops. So that we can see as part of the response to changing price patterns, even with distortions left in these systems, a changing complex of the food that is being produced and consumed, country by country.

This will have implications for world trade and one has to look at where wheat fits in, where coarse grains fit in, where soybeans fit in, etc... That's the type of thing that I was referring to in my very brief comment that it is not obvious without looking at individual situations how great the production response will be. At the same time also there'll be consumption response, and in terms of which commodities the response will take place.

HON. MITCHELL SHARP (Moderator): While you're on your feet, so to say, Mr. Abel, there is another question relating to the first part of your paper, to this effect:

Could less protein in wheat mean less quality
in bread and lead to less consumption?

Now, this is of course a Canadian question, I'm sure, because we believe high protein is what makes our bread so delicious.

MR. MARTIN ABEL (Washington): Quality is in the eyes of the beholder. If you like eating flat bread, you prefer to eat flat bread, you probably think that this wonderful puffy-like bread that we produce in the United States and Canada is horrible stuff. But, if you like the puffy-like bread, then you might not like the other kinds of bread. So you see, I mean the preferences are out there and they may change over time. I really don't know. Quality tends to be used in a normative way and I really don't know what it means and how to interpret it. I think we'll just let the market tell us in terms of what different consumers are willing to pay for different classes of wheat as well as for protein content.

HON. MITCHELL SHARP (Moderator): Thank you.

Mr. Turner, a question for you.

How do you solve the problem of assessing the cost of carrying surplus grain stocks to world governments? Can the United Nations or some other international agency be used? I recall that, in your paper, you said something to the effect that you did not think these costs should fall upon the producer.

MR. E.K. TURNER (Canada): No, certainly the message I was trying to convey is that the producers have enough uncertainty in their production challenges, the size of the market challenge, the price challenge, without also having to be the residual suppliers of the world. I guess one of the major exercises in which we engaged in Geneva, within the terms of the International Wheat Agreement, was attempting to find ways of sharing the burden of carrying growing stocks. We were unsuccessful in doing that.

If we cannot find some way of sharing the cost of those stocks, then it needs to reflect in the price of the commodity, because that is as much remuneration as the price that is received on the day the product is sold. So, if farmers in North America -- and this is basically where the surplus stocks are carried -- are expected to carry those for the sake of world food security and to satisfy the needs of consumers around the world, then we have really got to find a way of building that into the price of the product of getting some assistance in actual stock maintenance.

Obviously, it would have to involve, if it's going to be in the stock maintenance area, the governments of the respective countries. And I guess if it's not going to get reflected in the price of the commodity,

those importing nations -- if they really want food security -- will have to find some way of contributing as well. It's not something that I have the solution for, but it's something that requires ongoing attention.

HON. MITCHELL SHARP (Moderator): Thank you very much, Mr. Turner. A question here, technical question for Mr. Nogueira. The question is this:

Brazil has an export tax on soybeans but no similar tax on soybean cake or meal or soybean oil. How much does this policy cost Brazilian producers of soybeans and what is its justification?

MR. RUY NOGUEIRA (Brazil): Mr. Chairman, I do not have an evaluation, a precise evaluation, but as you could see from the figures I mentioned, it definitely has not harmed production. The fact that the tax exists for the raw material and it does not exist for the processed goods is very easy to understand. Brazil has been striving very much over the last two or three decades to develop its industrial basis, so some kind of protection is given to companies established in Brazil. The companies are, by the way, affiliates of international grain companies. I understand that some kind of balance has so far been struck in the interest of either importers and domestic processors. Thank you.

HON. MITCHELL SHARP (Moderator): I have two questions for Mr. Ingram.

First of all, it relates to a statement about what happened in Bangladesh, when wheat production rose, I think according to what you said Mr. Ingram, from 100 thousand tonnes to a million tonnes. What happened to rice production during the same period?

MR. JAMES INGRAM (WFP, Rome): Well rice production also increased, yes.

HON. MITCHELL SHARP (Moderator): The second question is:

How does a country qualify for food ?

MR. JAMES INGRAM (WFP, Rome): Well, how it qualifies with WFP, which is the only way I can answer it. It qualifies by being, first of all, a developing country. That is a very embracing definition but what in practice happens in WFP is that 80% of the total food aid that we supply goes to low income (i.e., under \$800 per capita per annum) food deficit countries. Within that 80% the biggest recipients are in Africa, south of the Sahara. And in particular the least developed countries, which have incomes per capita well under \$800, also get something like 35% of the total resources. So, the whole emphasis is

on the poorest countries and, of course, food deficit countries among them. However, the remaining 20% goes to better-off developing countries than those with \$800 per annum per capita incomes. But, in those cases, the food aid is concentrated on projects in their poorest areas and also the contribution that the government of those countries make to the projects is very substantial. It is often as high as three-quarters or more of the total cost of the projects.

So in other words, the poorest countries are the main recipients; better-off developing countries do get some but a relatively small part, and for such countries the assistance is concentrated on projects directed at the poorest people in the poorest regions. In addition, the governments of the better-off countries are expected to make a very substantial contribution to the total cost of the projects.

These projects are nearly all food for work type projects and they are often of a rather innovative kind. For example you often get a situation where you wish to encourage the farmer of a poor region to invest in, say, tree crops. Well he has to wait such a long while for the returns from those crops that the food aid can be an incentive to him to plant those tree crops. Of course it's then phased out as the trees become bearing. These projects have a very important social benefit because they slow down the rate of the movement of population to the cities which are growing so rapidly, for example in Latin America and in some parts of Africa.

So, even though, say, a middle income country, is going to invest a large amount in such a project and the WFP contribution may only be 20% or 25% of the total cost, the government regards that investment as substantially less than if it has to provide for these people when they get to the cities. I give this as an example of the sort of thing that is done in some of the better-off middle income countries, say, over \$1,000 and up to about \$2,000 per capita. Thank you.

HON. MITCHELL SHARP (Moderator): Thank you, Mr. Ingram.

The next question is to Dr. Castle and/or Mr. Abel. It is a comment which I am not sure is justified, but at any rate it comes from the questioner.

Speakers generally have left the impression that little change in the grain trade is expected to the year 2000. There was significant change in the last 15 years. Change is coming more quickly in most areas. Why is grain an exception?

Now, I don't know whether that's a justified interpretation of what you have said but perhaps you might comment generally.

DR. EMERY CASTLE (Washington): I'd like to comment first and then turn to Martin. I really did not say that. I really did not comment on changes in trade and I have not personally researched it in depth and, therefore, the opinion that I am about to offer probably is not worth a great deal. But frankly, I have not been persuaded by the arguments that I have heard in this conference to the effect that trade will increase. It will increase, I think the consensus is, but at a somewhat less rapid rate than in the past. It has generally been a fairly conservative rate of growth, I think, that has emerged from the conference.

That may well be true, but I have not been convinced by the reasons that have been given. I think that it is possible that we could have substantial income growth in selected areas of the world and -- as Gale Johnson pointed out yesterday afternoon -- when income growth occurs, that is a stimulus to grain trade. And I think that that influence could very well override the more pessimistic kinds of arguments that have been advanced, including the one by Martin Abel. So I offer that as a comment by a dilettante who studies the grain trade only occasionally.

HON. MITCHELL SHARP (Moderator): Well Mr. Abel, are you more professional?

MR. MARTIN ABEL (Washington): Oh I doubt that! My own remarks which were dealing with a few aspects of the grain trade, I thought indicated there might be some very interesting and exciting changes going on. I think most of the pessimism comes from how people interpret aggregate world trade volume numbers, and pessimistic in relation to the period of the 1970s. I mean, I guess it all depends in part when you were born and when your formative years were. I have seen a lot of projections on world grain trade from the 1980s that would say that trade will grow at an annual rate of about 3 to 4% a year. Now that rate is only about a third of the annual rate of growth that we averaged in the 1970s. However, it's about equal to the rate of growth we achieved in the 1960s. That is one aspect of it.

But there are lots of other things going on in world grain trade that one should be concerned about. Dynamism is good or bad. I think there are a lot of participants in world grain trade that, for financial reasons, are going to be forced out of business. And that who in this world carries on the trade and how it is carried on may change very dramatically over the next ten years. That's another aspect of it.

We may see, as we have in the past, changes in composition of world grain trade. Let me elaborate on the point of income growth. With respect to many developing countries, if they experience good growth in income, probably the benefit in terms of their imports or someone else's exports are going to lie in terms of feed stuffs and not food stuffs. And one has only to look at the experience of a number of

countries. Where their own agriculture developed successfully, that provide an impetus for the overall economy to develop and as people got more money they wanted to eat meat, poultry, eggs, dairy products. And these are countries, for example, places like Korea and Taiwan, where the real explosion was in terms of what I would call feed stuffs to support the livestock industry. I think that too, is a very important point. I think if we get the developing world back on a reasonably good growth path, -- and I think in time we will -- then we get back to one point that I made, which is the pressure that exists in the world for a variety of reasons to begin to think about wheat as a grain from a global point of view, not with respect to specific markets.

HON. MITCHELL SHARP (Moderator): Thank you very much. I suppose this is a question that could be put to all the panel, although it's a cry of despair, I think, rather than a question.

How is it possible to have stable negotiated international wheat prices when international currencies are not stable?

I don't know to whom to direct this. I suppose the most ardent advocate here of international commodity arrangements. Would you like to try your hand at this? Have you thought about this problem, Mr. Turner?

MR. E.K. TURNER (Canada): No. You know, I don't pretend to be an expert in the whole area of monetary concerns and how they relate in this area. I'd be at risk of misinterpreting the question. It makes me think of a letter I got a few months ago from Statistics Canada, and the letter said, would you send us a list of all your employees broken down by sex. My response was that we generally had a pretty healthy group and most of our problems were either job-stress or alcohol related and I wasn't aware of any of them being broken down by sex! But I think that, of course, the international monetary situation compounds the difficulties of achieving a sensible and workable international agreement. In my paper I did, however, recognize that we had to co-operate as world nations in solving some of the problems other than just in the grain area or else we would not be able to solve the problems of agriculture internationally as well.

As to how that is achieved, I guess I would have to bow out and leave it to those people who are experts in that area. But I do know that the whole message theme running through my paper is that if people are determined to achieve something -- just as the farmers in Canada were determined sixty and seventy years ago to change things for the better -- and we get together, we can find a way of overcoming these obstacles that stand in the way of co-operation between nations toward the benefit of all.

HON. MITCHELL SHARP (Moderator): Thank you, Mr. Turner. The faith of the Saskatchewan Wheat Pool in such matters is undiminished. I recall many occasions when Mr. Turner's predecessors gave very similar speeches but how difficult it was to translate these very desirable things into practice. I think this is the problem that we face.

What has struck me about this particular symposium is how little support there is for any form of traditional wheat agreement, such as was in effect in the fifties and sixties. Does it mean that people are pessimistic about the possibility of co-ordinating policies or does it mean that people do not believe in international commodity agreements? I'd like to address this question to all the panel, if I may, because I think this is a fundamental one. Is it that the problem is too difficult or is it that it should not be attempted... the solution should not be attempted?

DR. MARTIN ABEL (Washington): Well I'll take a stab at it. First of all, the world has changed dramatically. If one looks at history and gets very nostalgic about the wheat agreements and those that one felt worked reasonably well, we were dealing with a very small number of importing and exporting countries with a great deal of common interests. The number of participants in the world wheat economy has increased and the volume of trade involved has increased so much that I think the numbers themselves present a tremendous complexity, if not an impossibility. So I think that is one point that has scared people away.

The other thing that I sense is not so much a lack of interest in agreements but a lack of interest in certain types of agreements. I think there is general agreement that there is value in consultation, that there is value in discussion, and that something comes out of that. I sense that the really sour taste in people's mouths are left by rigid agreements trying to specify and defend prices or market shares. And on that score, there is some history to indicate that it is not a very promising road to go down. But that doesn't mean that there aren't forms of agreements and co-operation that would be useful.

HON. MITCHELL SHARP (Moderator): Mr. Nogueira.

MR. RUY NOGUEIRA (Brazil): Thank you very much, Mr. Chairman. I basically share the views just expressed by Mr. Abel, and I think that the dynamism which has characterized international wheat trade over the last fifteen years was the result of very big changes which have in fact been produced in the exporters' universe and also in the importers' side. I think that some very important new variables were introduced since the time you mentioned, the early fifties, when it was enough for Canada and the U.S. to adjust their policy and hold their stocks so that trade could expand on a steady basis at stable prices.

But the world has changed dramatically and what we have witnessed in international wheat trade for the last ten years was something which was rather unexpected. So I do agree that the kind of agreement we had in the fifties or in the sixties, wouldn't work any longer. Rigid price dispositions, as Mr. Abel indicated, or rigid provisions regarding quotas and market shares, would be very difficult to agree with. But, no doubt some kind of increased consultation or co-ordination or trying to get the different national policies moving in the same direction would be highly desirable. And contrary to your expectation, Mr. Chairman, I can feel it beginning to occur. I understand that it was indeed a very timely occasion for this forum to convene because maybe it will have been convened at the onset of a process which will eventually lead to the kind of adjustments price-wise, and policy-wise, the nature of which Mr. Abel has given us an indication. Thank you.

HON. MITCHELL SHARP (Moderator): Thank you. Mr. Turner next.

MR. E.K. TURNER (Canada): Mr. Castle wants me to go first so he can sum up here, I think. I guess my personal philosophy is that we ought to be smart enough to work out something internationally that will serve both the producer and the consumer, serve both the developed countries and the developing countries. I would probably be the last one to agree to an international agreement for the sake of having an international agreement.

I expressed similar views to this when I was in Geneva as an advisor with the Canadian delegation. There has to be something there for people or else it simply cannot work. So I am not suggesting that former types of agreements are the model for the future, but surely there are some aspects that we can tackle jointly. As a farmer, I don't need an international wheat agreement to give me a bad price -- I can get that out of the market any day at all! So we have to be careful what we structure.

On the other hand, I look around at the greatest grain growing area in the world that runs from Texas and ends well-north in the Prairie provinces of Canada, a continuous plain area, that produces huge quantities of wheat, and what do I see today? I see hundreds and hundreds of excellent farmers that are being severely bent by inadequate prices for their produce. In Canada, we have been blessed with above average crops now for about the last three or four years, we've had levels of exports that have set new records for Canada, and yet we have farmers who are going broke or at least tapping their reserves just to remain in business. Something is basically wrong when that happens. I know from talking with my friends south of the Canadian/American border, that they have all kinds of farmers in exactly the same situation. Why should the basic producer of food not receive an adequate return for the job he is doing on behalf of the world?

I say the only way we can tackle that is by international co-operation between nations. If it can take on a structured form of an agreement that has some disciplines in and we're all willing to live by those disciplines, well and good. But if not, maybe we need some approaches between nations to achieve a return for the basic producer. If he doesn't get that, we're going to see more need for food aid, more need for programs to overcome that deficiency. We're also going to see the kind of domestic policies developed in countries, within our country and also extended into the international area, that are going to cause resentment between nations.

I subscribe very much to the thesis of Dr. Castle that interdependence is maybe one of the best ways of achieving long term world peace. So maybe we need to be dependent on each other in this world. In that case, we would be less apt to condemn the other person for doing something that we don't like on any given day. Now I'd like to hear Dr. Castle develop his thesis a bit further.

DR. EMERY CASTLE (Washington): Well, I sure didn't indicate I want to go last because I want to summarize! I wanted to go last because I feel that what I have to bring to this is not all that much. But let me say that I think that with respect to wheat, a number of the arguments developed by Martin Abel are somewhat persuasive.

At our organization, Resources For The Future, we have looked at a number of different commodities, international trade in a number of different commodities resource-related, and it does seem that there have been some fundamental changes as far as wheat is concerned in the last few years that make the earlier kind of agreement not very probable in the future. I think the merging of the feed and food grains is another factor that certainly is applicable here.

Now with respect to the whole question of interdependence, I would suggest that we may need to view the problem in a little broader context and on a commodity-by-commodity basis. Reference was made earlier to monetary conditions and exchange rates. I think that this is certainly an area that could do a great deal in terms of stimulating international trade.

I think that co-operation generally across the board, and it was one of the reasons that I raised the environmental question, I think that international co-operation on some of these resource and environmental issues might be approached because it does not have the same stress and strain that are related either to political problems or to economic problems. I think some co-operation in those areas could occur and indeed some things are going on now that are somewhat hopeful in that respect. But I think that anything which tends to reduce economic interdependence tends to work against the objectives as far as particular commodities are concerned and I include international pipelines and all such matters in that connection.

HON. MITCHELL SHARP (Moderator): Thank you very much all members of the panel. I have some other questions. One to Dr. Castle, that I don't understand because of an expression that I am unfamiliar with. The question that is put to you is:

What are your views on the role of countertrade?
"Countertrade" -- this is an expression that I don't understand -- as a future direction in world grain trade.

MR. EMERY CASTLE (Washington): I think it means "barter".

HON. MITCHELL SHARP (Moderator): Barter, oh! Oh I'm sorry. Well then, have you some comments on barter trade as a direction in the world grain trade?

MR. EMERY CASTLE (Washington): Well, I think as far as international trade is concerned, barter becomes exceedingly difficult, simply the way the market is operating. I think that a monetary system is very, very important here, so I do not anticipate, would not anticipate, this to be a significant means of international exchange.

HON. MITCHELL SHARP (Moderator): Thank you. This question is for you, Mr. Abel. In your presentation, you spoke about reduction in consumer subsidies and increases in producer prices in developing countries, which would lead to consumer response. The question put to you is:

Presumably this means a decline in consumption and does this seem to be acceptable given the present consumption levels in most developing countries?

DR. MARTIN ABEL (Washington): Well it may or may not mean a decline in total consumption if some food prices are going up while others are coming down and they offset. Or if there is a general rise in real food prices, then there is a consumption affect. In a sense, looking at a lot of these countries, that in itself is not all bad provided there are certain other things that are done.

There is still the opportunity to target food assistance to the poor segments of the population as opposed to giving broad price subsidies where the middle income groups and the rich people benefit as well as the poor people. So that, I think as part of this realignment, people are paying attention to the most vulnerable segments of the population. For example, I believe in Sri Lanka where they liberalized their rice policy, cut their imports of rice dramatically -- and they had been very huge -- increased their domestic production, they still have a food subsidy but I think it's in the form of a food stamp program targeted to the very poor segments of the population.

So, rationalizing prices does not have to be consistent with cutting back on the food consumption of the poorest groups. And I suspect that in most countries that are faced with doing this, that they will figure out some ways to identify those in the population that really need the help and provide it to them.

HON. MITCHELL SHARP (Moderator): Thank you very much.

Mr. Ingram, you spoke about or you emphasized in your comments and in answers to questions that the way in which food aid is used by the recipient country is critical.

Is there anything that bilateral donors could do to ensure that their food is being used effectively?

MR. JAMES INGRAM (WFP, Rome): Well, I think, Mr. Chairman, that bilateral donors are, just as WFP is, learning and have learned a great deal over especially the last ten years. And to varying degrees, I would say that donors, whether multilateral or bilateral, are pretty much of a same mind about how best to utilize food aid.

I suppose the problem perhaps lies in the fact that some of the methods of program type aid, which some of the bilateral donors have utilized, have led to a kind of food aid addiction in some countries. The task now is basically to move away or to try and put a stop to that addiction and I think most donors are well aware of the importance of doing this.

The problem always lies in actually doing it because then, for the donor, their political relationship with the country that they are assisting, may in fact be a complicating factor.

I think the best route to follow is basically the one of the co-ordinated approach of all donors and WFP is certainly ready to play its part. Indeed playing its part, in bringing about a co-ordinated utilization of food aid, and playing a role in the policy dialogue. But the policy dialogue works both ways. It is necessary that the countries providing the food aid may well have to accept some limitations on aspects of their own policies. So the whole subject is an extremely complex one and one that is given to very simple generalizations.

I think, Mr. Sharp, if I can revert to our common experience in foreign affairs, I find food aid a little bit like foreign policy. Everybody's got an opinion, everybody is able to tell you what to do. But in fact, like foreign policy, food aid is an extremely complex subject and I would say that we are learning a lot about it, both bilateral and multilateral. I believe that many of the adverse consequences that people talk about are consequences that applied more in the past than in the present.

So, in fact, not only am I not pessimistic about solving the food production problem of developing countries, I am not at all pessimistic about continuing to make better use of food aid, not only by WFP but by bilateral donors.

HON. MITCHELL SHARP (Moderator): Thank you, Mr. Ingram. I have a question for Mr. Nogueira. The question is this:

Taking into account the poor success of wheat growing in Brazil, would it not be better to abandon wheat production and get larger soybean production by planting the soybean earlier instead of double cropping them? The increased production of soybeans could then easily pay for wheat imports, the more so as wheat is readily available.

MR. RUY NOGUEIRA (Brazil): This is a very interesting question and I am very thankful for it. But before I come to tackle it, I would like to say that as a matter of fact, the domestic wheat production in Brazil does not present that poor an aspect. As a matter of fact, in the areas which are adequate for growing the crop, some advance has been obtained. But the fact is that we are a tropical country, so we would never, even with reasearch or work done by institutes like the one whose work was described yesterday, be able to grow enough wheat in order to meet our demands. And it would be foolish to do so. But on the other hand, I do not think it would make any sense to depend totally or exclusively on imports when you could produce a certain amount of your requirements.

If we are to plant soybeans earlier, I am not very sure whether we would have a market for this expanded production. At the same time, I think it would be very dangerous not to have a domestic production of wheat in Brazil. I think that in spite of its importance, wheat imports account only for 3.5% of Brazilian overall imports. So what is really needed for Brazil is that markets should be expanded for its present exports and this will enable us to continue to buy wheat at present levels. Thank you.

HON. MITCHELL SHARP (Moderator): Thank you very much, Mr. Nogueira. A question to Mr. Abel and it is one that I would like to amplify a little bit. The question relates to the future structure of agricultural production in developed countries. And I would like to be just a little more specific about this as to whether you expect -- and you seem to indicate in your remarks that you did -- that internationally prices of grains, for example, would tend to come more into line.

What, in your judgment, would that development have upon production, for example in Europe, which is one of the main problems of the world in a sense because of the very high

prices generally that prevail in Europe for many food crops and for their tendency to export in order to rid themselves of their resulting surpluses?

DR. MARTIN ABEL (Washington): That's a very complex topic on a structural issue. First of all, it is hard to define what we mean by structure. Let me make a few points in addressing this issue. Government policies in the past have influenced the structure of agriculture. And now I am talking about, when I say structure, size of producing units, how they are and what they produce, to keep it in those simple terms.

Certainly, in terms of the U.S. experience, if you look at our combination of tax laws, price support programs and a whole set of other government policies, one can make the case that they have contributed to the trend towards larger farms and more specialized production, in terms of the number of enterprises, on the farm.

In part, the future direction of policy, and not just the level of prices but what countries do about things like tax laws and the amount of instability they are willing to tolerate in the market, can have some influence on the structure of agriculture in terms of concentration, growth and size of farms, the rate at which this takes place, and I suppose on how the farming is done. My guess is that if all that we're talking about is somehow lowering price support levels but still keeping everything else in place and still thinking about keeping prices stable but at a lower level, the main effect that that is going to have is to decrease land values, which have captured historically the accumulated economic rent. It may drive some producers out but others will come in and farm the same land. I am not sure that it would have a profound effect on the other dimensions of the structure of agriculture. But it is a complex topic and I don't think that it has been studied nearly enough.

HON. MITCHELL SHARP (Moderator): Thank you very much, Mr. Abel. I think that we must bring this question period to an end and I would like to thank the theme speaker and members of the panel for their excellent presentations to us for the frank way in which they have answered the questions, even when they didn't know anything about the subject, as some of them admitted -- but it's quite clear they did and their modesty was becoming.

Now, I have the task of attempting to summarize this whole forum. Since I haven't attended all the meetings, I have to depend upon those who did and I have received some notes from the various rapporteurs that I shall try to use to guide me in what I say. First of all, however, I would like to congratulate those who put this forum together. I have been very impressed by the quality of the speakers who have been asked to come and by the level of the discussion.

In this world, there are lots of difficult problems and one cannot say that any particular conference settles any of the issues. However, it is timely that we have had this Centennial Forum, particularly in connection with the meeting of the International Wheat Council which has been struggling for a long time to try to bring about greater stability in markets and in prices.

SESSION III - SUMMARY

- If I may first of all address myself to the question of what might be the common element in all the sessions -- and certainly it was evident in the session here this morning -- it is the theme of increasing world interdependence. This was emphasized by some of our speakers today and in previous sessions. Not only is the world becoming more interdependent but it is necessary to recognize that this is so in the policies that governments follow and particularly in trade. Trade, international trade, is a force for improved efficiency for economic development and even for peace. It is a view that I hold quite strongly that it is a mistake to use trade for any purpose other than to promote understanding and that it can be used for this purpose. I am happy to see that this theme has appeared in the presentations that have been made to us at this forum.
- It follows, of course, that if you are going to use trade effectively, you have to have some rationalization and coordination of national policies. I can recall many years ago attending a meeting in Brussels when the European Economic Community was more optimistic than it is today, and a group of people were meeting to talk about the establishment of a common currency in Europe. It seems incredible that people, a few years ago, were talking in such optimistic terms. The question I put to them was how can you have a common European currency unless you have co-ordination of fiscal policies? And they admitted that -- and I think it is true that if we are going to use international trade for the purpose for which it can be most effective, namely in promoting efficiency, economic development, higher standards of living and even peace -- there has to be more co-ordination of national policies. Otherwise trade does not occur or it becomes distorted and doesn't serve the purpose it can serve.
- In the first session, the general theme seemed to be one of general optimism, that while the problems facing society in the future are significant, they are manageable. The global environment is in a period of transition and we are facing many new challenges, but all speakers agreed that the outlook is not one of gloom and doom.
- The view was expressed that the rate of growth of population is slowing in both developed and developing countries and total world population will peak much earlier than expected and will also peak at a much lower level than was originally thought.
- Coupled with the population outlook is our enormous potential for large increases in food production. Advances in technology are such that food production is not expected to level off and we will, on technical grounds, be able to provide food for the world's population.

- The real problems in providing food will not be technological but will be political, economic and logistic.
- The solutions to the problems we face require a new level of cooperation between nations that recognizes our interdependence, to return to the theme that has been emphasized throughout.
- It was agreed that there is a need to stem protectionist measures and to move towards freer trade.
- It was also agreed that we need to encourage growth in developing countries by providing investment for infrastructure development in those countries. In this respect, developed countries will need to join together in cooperative action to assist lesser developed countries.
- While it was agreed that the debt problems of developing countries are serious, in the opinion of those who participated, they are manageable.
- In summary, we need to recognize that the challenges we face are global ones and that individual countries cannot meet these challenges independently. Unilateral and bilateral actions must give way to multilateral cooperation and governments need to recognize that the changes we will be seeing will require new policy responses.
- Session II, it looked in greater detail at the future for the grain trade.
- It reflected less optimism than the first session. The expectation of a downward trend in real prices for grains, however, is consistent with an optimistic view of production potential.
- The grain trade is expected to continue to increase but at a rate of about one-half that of the past decade.
- Government intervention is responsible for many of the distortions in the grain markets. The impact of reducing distortions is much less than might be expected.
- The rapporteur is of the view that on the basis of what was presented in the second session, governments are likely to continue to intervene. I must say, as I look around the world, I find this true and I didn't hear the presentations.
- Lack of financial resources is seen as a major constraint in grain markets. I assume that what is meant by that is the difficulty of some countries in dealing with their balance of payments problems

and the way that constrains grain markets and does result in some distortions. Particularly when those balance of payment problems arise from things such as the recent energy crisis and the very rapid rise in prices that resulted at that time, and the resulting debts that now overhang these countries. But that is true not only of grain markets, it has a general effect throughout the economies of all countries.

- International organizations can play a stronger role in increasing production in deficit areas, improving the infrastructure and increasing food security. The African region is expected to encounter the greatest difficulties and will require increased imports.
- Problems of trade distribution must be examined on a country-by-country basis.
- Session II also revealed agreement on the need for a strong spirit of cooperation among nations. Very strong efforts are needed to strengthen the economies of developing countries.
- Today again, in Session III, we had great emphasis on interdependence. Dr. Castle, in the excellent theme paper that he presented, drew attention to some of the fundamental factors that are resulting in interdependence, whether we want it or not. The very fact of the threat of nuclear war certainly does have an effect upon one's views about interdependence between nations and in a strange way does tend to promote it because of the fact that a confrontation turns out not to be a very good policy.
- World markets will become more competitive. As Dr. Abel said, it looks as if there are going to be reduced distortions in price and production policies. This should result in promoting what Mr. Ingram hopes will come about finally, in food aid, when these countries will be able to look after their own needs.
- There was not much support for cartel arrangements as a means of dealing with marketing problems, and the difficulties of bringing about international commodity arrangements under these very complicated circumstances was emphasized.
- There was general agreement that we should never stop trying to bring about greater market stability. I'm sure we all agree that the kind of instability that exists now does not help anybody, either producers or consumers, and anything that can be done to bring about a greater consistency and greater discipline to eliminate so many of the distortions arising from government policy is worth attempting.
- Mr. Turner and others pointed out that producers respond to incentives and need remunerative prices, otherwise the world will not be as well fed as it could be.

- Increased interdependence through trade will support economic development but means must be found to develop cooperative solutions ensuring income stability for producers and supply security for consumers. This is particularly important for the developing countries who are becoming major importers. Managed properly, this interdependence can act as a major force for peace.
- This is a brief summary of the principal points of the final session.

MR. W. MINER: Thank you, Mr. Sharp. As Conference chairman, I would like to share the appreciation which you extended to today's speakers.

At this point, I'd like to thank the hidden supporters, such as the interpreters. They have done an extremely good job of what is a difficult task.

I also would like to say that the technical staff have functioned extremely well and to thank you as well.

A program of this nature takes a good deal of manpower and without mentioning names, I would like you to know that there are many people working elsewhere who have supported us as conference organizers. In particular could I say that, Mr. Sharp, we've appreciated very much your contribution this morning, and we know that you were assisted by Dr. Menzies from the University of Guelph, and Don Adnam and Jack Gellner from the Canada Department of Agriculture. Your special knowledge of the area, Mr. Sharp, was apparent this morning and we are grateful for your contribution to our program.

Finally, it falls to me to bring our forum to a close. Some have suggested, for example, Mr. Nogueira and Dr. Castle, this morning, that the forum was timely. We hope that that is so. Some appear to believe that a consensus is emerging to develop the means whereby nations can work more closely together to develop their policies -- and perhaps find ways to interrelate more closely than in the past, for example by strengthening some of the existing international institutions using as well the word "co-operate" more closely in this endeavour.

In this regard, as Conference organizers, we referred back to how we saw the challenge when we put your program together. We said it was to anticipate the future and to develop policies to safeguard and encourage the vital grain sector -- and I guess we can now add -- "and to do so in an interdependent manner". In any case, we certainly hope that the forum itself will contribute to you in your work and on that note I'd like to draw the forum to a close.

ADJOURNMENT

